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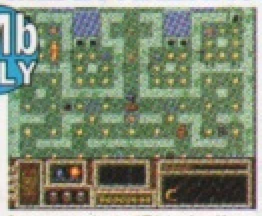
### WONDERDOG



1Mb ONLY

Take control of the fabulous Wonder Dog in his quest to save his home planet from the evil Pitbullies! Our exclusive demo of this ace console conversion sees Wonder Dog leaping for his life in the underground platform level. Dodge the bad guys, smash them with your magic stars and pick up as many bonuses as you can in this fully playable demo.

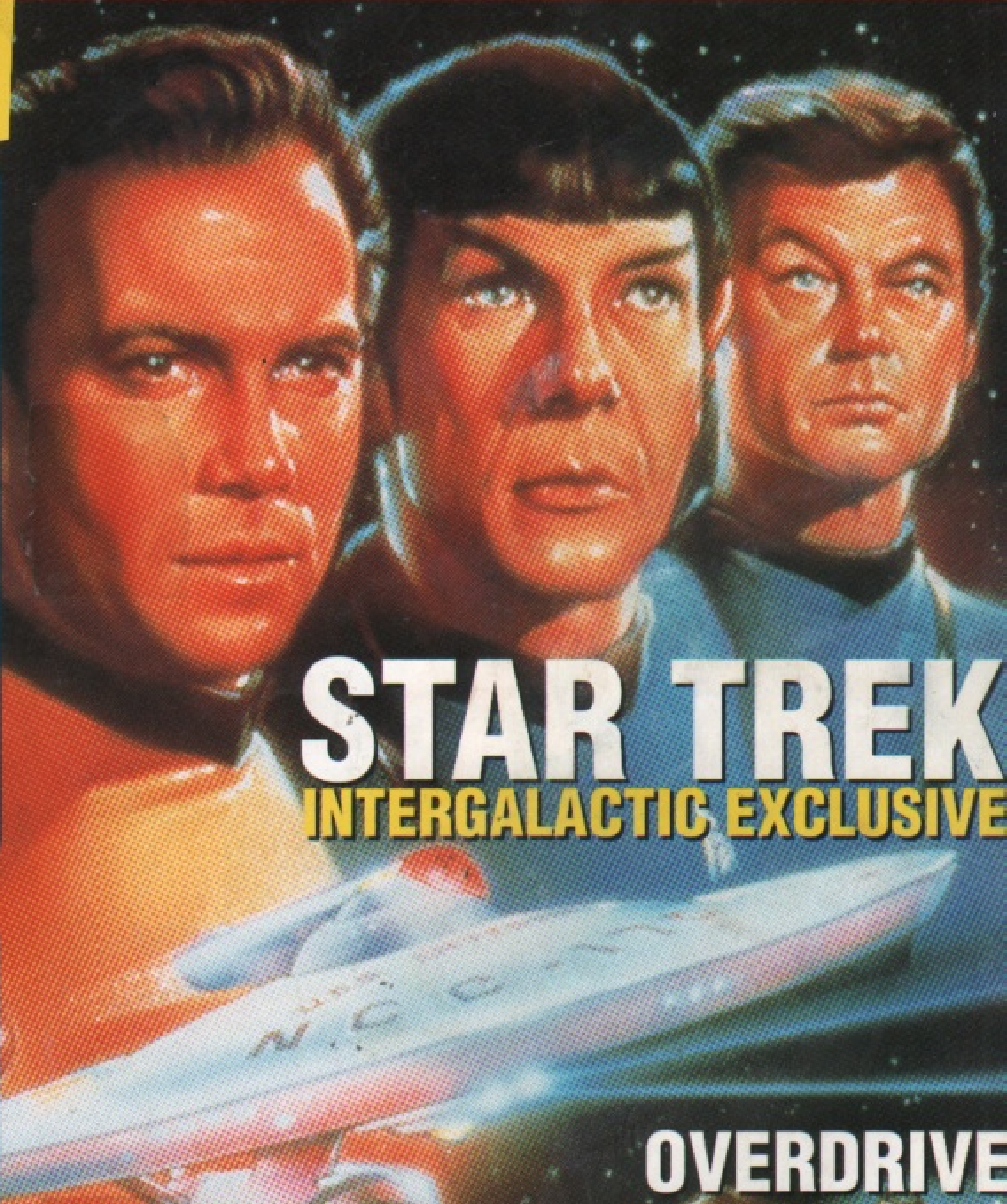
### MEAN ARENAS



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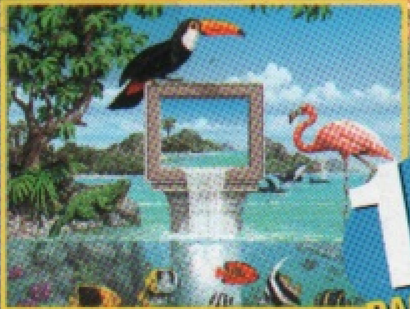
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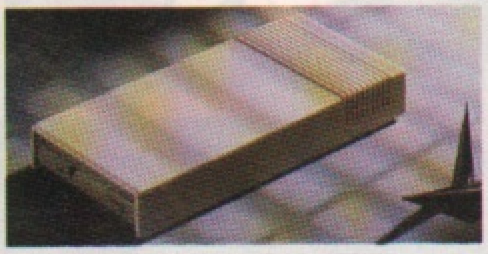
## PC880B POWER DRIVE

The award winning external disk drive which includes Anti-Click (cures that annoying click), Virus Blocker (prevents viruses) and built-in Backup hardware.

The PC880B is available with Blitz Amiga, Blitz and X-Copy or Cyclone compatible (this drive is only available to registered owners of X-Copy Professional. You must provide proof of purchase of X-Copy Professional). The drive comes in a choice of two colours, black or cream.

**PC880B WITH BLITZ AMIGA ....£60**
**PC880B WITH BLITZ, X-COPY ..£75**
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3.5" removable hard drive from Syquest. Each cartridge stores 105MB.

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**BLITZ AMIGA ..........................£15**

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The Floptical stores 20MB of data on a 3.5" disk (a SCSI interface is required).

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**OCR JUNIOR SOFTWARE .........£49**
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The scanner interface includes a full through port.

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1MB RAM with battery backed clock

**A600 1MB RAM .................£39.95**

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Our RAM board is designed especially for the A500+ computer and comes with 1MB of RAM on-board to expand your memory to 2MB of chip RAM (fits in the trap-door).

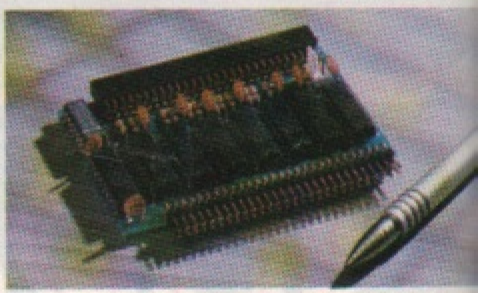
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## 1MB WITH THRU'PORT



Expand your A500's memory up to a total of 2MB without disposing of your existing 512K upgrade (works with 1MB chip RAM, 512K RAM must be 4 chip type or not exceeding 9cm in length. Your Amiga needs to be opened, this may effect your warranty).

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Free software included (A500+ compatible)

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**A500 CARD WITHOUT CLOCK ..£24**

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**A500 4MB POWERBOARD ....£189**
**A500 8MB POWERBOARD ....£289**
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**A2000 4MB POWERBOARD ...£149**
**A2000 8MB POWERBOARD ...£239**

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A wide range of Amiga's are available.

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| A1200 212MB HD | £725 |
| A4000 68040 120MB HD 6MB | £2329 |
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| COMMODORE 1084S | £199 |
| MULTISYNC MONITOR | £POA |

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| TRIFECTA 2000 LX BARE | £139 |
| 80MB HD | £239 |
| 160MB HD | £329 |
| 200MB HD | £399 |
| TRIFECTA 500 LX BARE | £195 |
| 80MB HD | £295 |
| 160MB HD | £359 |
| 200MB | £459 |
| TRIFECTA 500 EC BARE | £145 |
| 80MB HD | £279 |
| 160MB HD | £339 |
| 200MB HD | £419 |
| AD IDE 2 PRIMA BARE | £70 |
| 80MB HD | £245 |
| 160MB HD | £309 |
| 200MB HD | £399 |
| PRIMA 3.5" MOUNTING KIT | £29 |
| AD IDE 2 NOVIA 60MB HD | £259 |
| 80MB HD | £299 |
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| 212MB HD | £499 |
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| FLICKER FREE VIDEO 2 | £185 |

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## HOME MUSIC KIT

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| HOME MUSIC KIT | £69.95 |
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| INTRUDER 1 JOYSTICK | £29.99 |
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Fit 128MB on one Optical disk.

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| 128MB OPTICAL INTERNAL | £849 |
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## 2.5" IDE INTERNAL HD

Miniature hard drives for the A600/A1200 these drives come complete with a cable and installation software.

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| 170MB INTERNAL HD | £365 |
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## GVP A2000 HARD CARD

High quality SCSI hard card.

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| BARE | £129 |
| 80MB | £279 |
| 160MB | £349 |
| 200MB | £419 |

## AUTO ROM SHARER

One of the most advanced Rom sharers.

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| ROM SHARE A600 | £29 |
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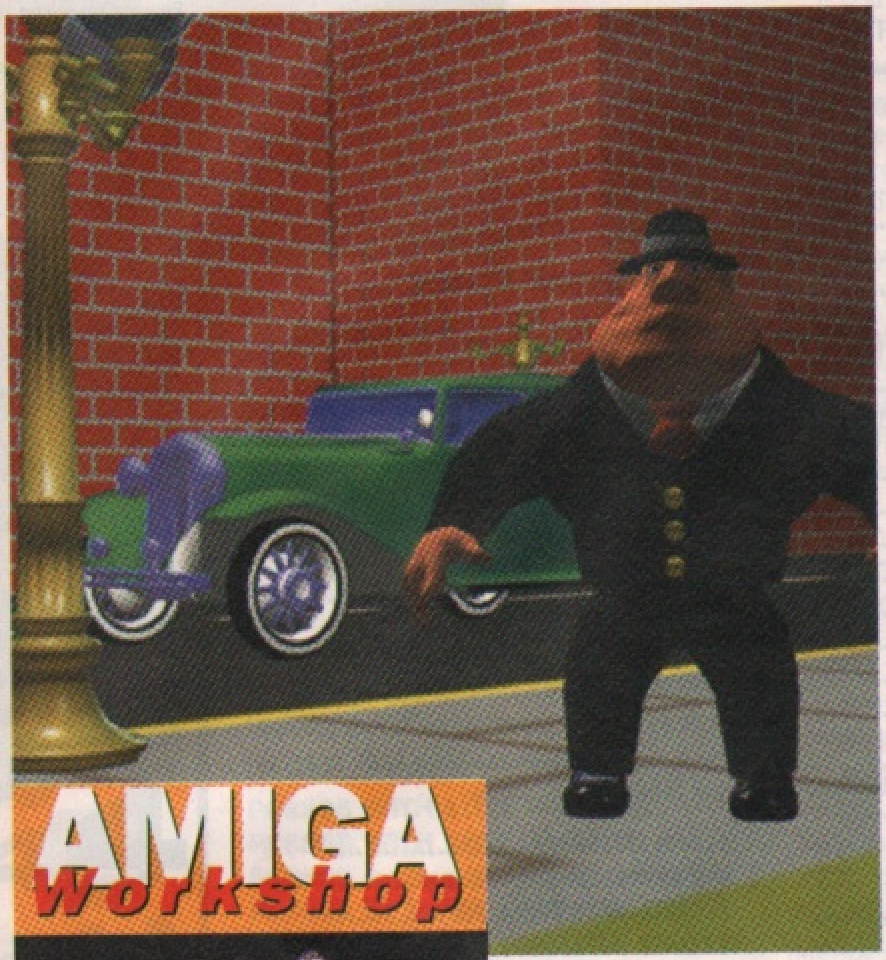
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CU AMIGA

# CONTENTS



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Why settle for two dimensions when you can have three? 3D graphics are really taking off on the Amiga, but if you don't know your texture maps from your polygons, where do you begin? Right here of course! Take part in the trip through all the strange and wonderful virtual worlds, as the CU AMIGA team take the mystery out of rendering, ray tracing and 3D modelling. Once you've got genned up on the finer points, take your pick of the software under the microscope in our exhaustive buyer's guide to Amiga 3D packages.




## 163 AMIGA WORKSHOP

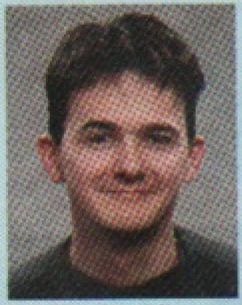
A regular little goldmine of information, the Amiga Workshop is crammed full this month. The immensely popular *Deluxe Paint* tutorial reaches part nine this month, while the equally in-demand *Video Titler* series is hanging in there with its fourth installment. AMOS fans get another helping of practical progamming tips, and help is also at hand for anyone struggling with the intricacies of *Hyperbook*. DIY continues the Build Your Own Robot series, and after all that there's still room to squeeze in Q+A and the Comms column.

## REGULARS



## OFF THE CUFF

EDITORIAL



*Dan Slingsby – Editor*

By the time you're reading this, initial supplies of Commodore's world-beating console, the CD32, will be on sale in a computer shop near you! This really is make or break time for the Big C, so fingers crossed that the machine will be a big hit. The initial games bundle includes Flair's *Oscar* platform game and Millennium's *Diggers*, both of which we took a look at last issue. Although they're not state-of-the-art by any means, they are fairly playable affairs, and its better than no software at all (which happened when Rumbellows jumped the gun and decided to start flogging the machine without any accompanying discs. See our news story for more info on that little fiasco!)

In other news, CU Amiga has just recorded its highest ever ABC. Thanks to YOUR support, we've crashed through the 100,000 barrier and now sell a staggering 111, 408 copies each and every month. It looks like the recent changes we've made to the mag are starting to pay off, and the extra boost to our circulation means we can invest even more money in the title and bring you the BEST coverdisks of any Amiga magazine. We've just signed up some quite spectacular programs for the next few months – but we'll be telling you more on exactly what we've got in store for you in next month's issue!

Finally, I'd like to extend my heartiest congratulations to two ex-CU Amiga people, Tom Glenister and Becky White, who recently got married. Of course, the CU team were out in force, drinking all the free beer and champagne that was on offer, and blubbing into their dirty hankies during the ceremony. So all the best, Tom and Becky, and keep in touch. Blimey, I'll be doing dedications next...

**NEXT ISSUE ON SALE 19TH OCTOBER**


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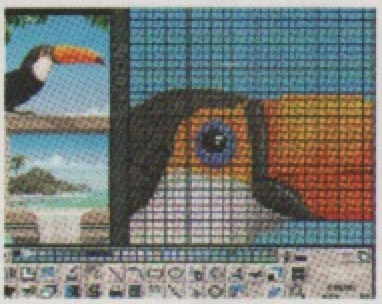
AE 111, 408 Jan-June 1993

# GET SERIOUS

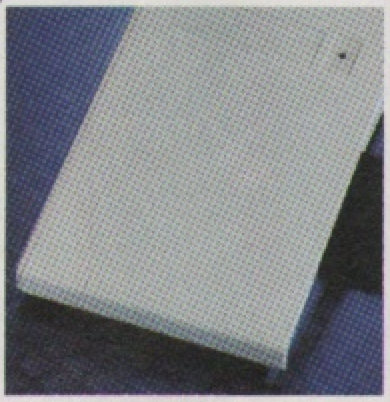
**PRODUCTIVITY REVIEWS** PRODUCTIVITY REVIEW

Star of the show this month is *Brilliance* – could it topple the mighty *Deluxe Paint* from its perch? Find out on page 110. There are also two budget genlocks tested, we take a look at some exciting new PCMCIA hard drives, and uncover the electronic highway of the Wired World.





Bloody *Brilliance*! That's Digital Creations' stunning new art package. Page 110.



Going into Overdrive – the world's first external PCMCIA hard drive for the A1200.

# SCREEN SCENE

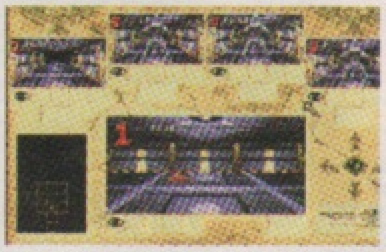
**GAME REVIEWS** GAME REVIEWS GAME REVIEWS

It's a game Jim, but not as we know it. *Star Trek* hits the Amiga, and as usual CU brings you the exclusive first review. Is it all it's been cracked up to be, or is it a pile of Kirk? Turn to page 71 to find out. Following up close behind is *Space Hulk*, a strong contender for RPG of the year. For the more trigger happy there's *D-Hero* and *Yo Joe*!.





Beaming down to an Amiga near you – Interplay's *Star Trek* blockbuster.



Aliens meets *Space Crusade* in EA's latest blockbuster conversion of *Space Hulk*.

# COVERDISKS

**Have we got disks for you? We certainly have! While others short-change their readers with save-disabled cut down programs, CU AMIGA brings you a never before released *update* update of Flexidump, plus an action-packed game disk that's miles ahead of the rest.**

## DISK 66 — PAGE 22

*Flexidump 2.5* really is something a bit special. Not only is it a complete, fully-functioning, bells-and-whistles-included program, it's actually an exclusive update on the previous commercial release version 2! Anyone with a printer will find *Flexidump* an invaluable tool, particularly when outputting graphics. We've all struggled and toiled with those awkward printer settings, tinkered for hours with dip switches and preference set-ups, but now thanks to *Flexidump*, all your printer troubles could be over. Even if you don't have a printer, *Flexidump* will still come in very handy as an image processor.The simple mouse-controlled interface will have you tweaking palettes and separating colours within minutes, and your printer will be in heaven!




## DISK 67 — PAGE 24

Wonderdog is about to become the latest platform cutie sensation, and we've got you a sneak preview with this completely playable full level of the game. Marvel as he takes to the air with his magical flying ears, step back in amazement as he deals rough justice to the baddies, and exclaim "Blimey! That's good!" as you play the game for yourself. Yes, once you've seen this, you'll believe a dog can fly. As if that wasn't more than enough, we also give you another playable demo, this time of the addictively simple *Mean Arenas* – it's pure unadulterated arcade fun all the way with this one. It doesn't stop there either! Somehow we've crammed a complete game on there too: *Zerberk*. A classic from the dawn of arcade games, this one's bound to have you up and zapping right into the wee small hours. Don't just sit there, load it!



# CU NEWS

## THE CD32 MUSEUM

No, they're not mothballing the CD32 yet. Far from it in fact. Although Commodore have been touting their new machine as a games console, its multimedia capabilities and applications are immense; the machine is already making inroads into commercial activities.

As part of a £4 million redevelopment, The London Transport Museum is taking the opportunity to introduce state-of-the-art interpretation techniques to their displays. At the heart of many of the new displays will be the *Commodore CD32*. Its high quality graphics, double-speed CD drive, powerful 32-bit processor and custom display hardware provide the ideal platform for Audio Visual and Interactive Displays (AVIDs).When completed, up to 109 CD32s will be used to provide Interactive Information, video, animations, interactive sound effects, display control and background sound effects.

All machines will be networked using a professional expansion system currently being developed by Index Information Ltd, the company producing all the computer displays.

"The plan is to re-equip the London Transport Museum centre so that it can communicate more effectively with a new generation of visitors. We plan to take this opportunity to introduce new methods of interpreting the collection, using the latest developments in design, graphics, audio visual and interactive displays," said Rob Lansdown, head of Communications and Display for The London Transport Museum.

"In a fresh look at the way the Museum tells the 200 year story of London's urban public transport, we have taken the linear, chronological, sequence of story panels off the walls and associated them directly with the objects in the collection. In this non-linear, object-oriented approach we will create 'islands' of interest and ensure that the vehicles and other original material tell the story.

"The visitor becomes free to explore the Museum and its collection and stories in a non-linear way, letting their own particular interest lead them around the Museum. Visitors will choose their own priorities and interests, navigating between the principle story 'islands' to follow, say, a social history or a technological theme.

"The multi-media world has already experimented with the idea of a Hyper-Museum in the form of a virtual museum on videodisc, CD-ROM and hard disk. Our intention is to take this concept one step further. We want to take this Hyper-media and use it to go beyond the database to interact with, and interpret, a real museum. Instead of visitors just being shown images of the collection as you Hyper-link around the disc, we will take you to the actual objects! In the real object-based Museum the visitor can wander through the displays, dipping into the electronic Hyper-Museum when they want to.

"As the Museum's core displays will also be written in a non-linear style, the electronic sections will form an integral part of the whole interpretation, adding a further dimension to the visitor's experience," he added.

The monitoring and control network is an essential element because of the major use being made of computers throughout the museum, it will allow them to be managed and maintained efficiently. The network will detect any machine failure within seconds and notify the central monitoring machine.

As well as the maintenance of the machines' operations, volume control (including silencing of all machines quickly should an emergency occur), software updates and usage logging can be carried out with ease. The centralisation of all machines within one room ensures any machine can be replaced in seconds.

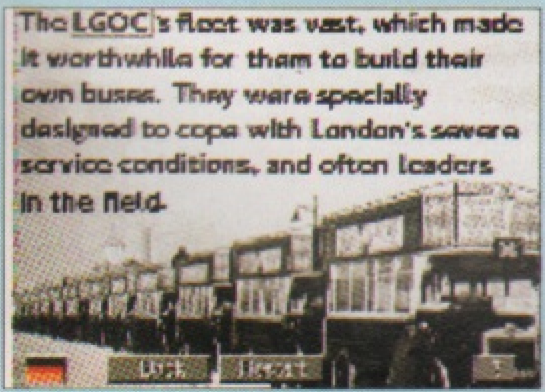
"Many of the qualities that will make the CD32 such a successful home entertainment system also make it the ideal commercial multi-media player," said Mick Tinker, Technical Director of Index Information Ltd.

"A high quality and low cost delivery unit combined with a powerful development platform is allowing us to provide advanced displays at much lower costs than competitive systems.

"We have had a very positive response from early demonstrations of the projects, we feel that the concept will attract the attention of Museums and visitors from around the world.

"One of the new Underground Train simulators was shown at an exhibition and ever since the Museum has been receiving regular requests from companies wishing to hire the display for their own exhibition stands!' he said.



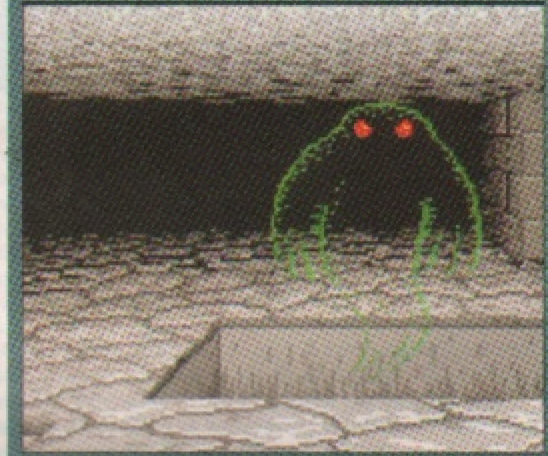

## CD32 FMV CARD

Commodore have unveiled the new Full Motion Video module for the CD32 console. Set for an October release, the add-on will retail at £229, which is an excellent price point for technology light years ahead of the competition. To display the potential of the FMV cartridge a music video disc will be included in the package. In addition, if you purchase the 32-bit console at the same time you'll get a £30 discount on the overall price. This carefully chosen subsidy will take the total cost for the two pieces of hardware to £498.

The bad news on the keyboard, mouse and external drive add-ons is that they won't be available until early '94. This seemingly late delivery is not down to lack of components, in fact the add-ons are in production already, it is more a question of marketing focus. Commodore intend to initially push the CD32 as a games machine and don't want anything to detract from that aim. Ring Silica for more information on 081 309 1111.



## DUNGEON MASTER



No, it's not a story about *Chaos Strikes Back* which, after all, was more an expansion than a sequel. After more than five years Fast Than Light (FTL) are finally going to deliver a true sequel to argu- ably the best role-playing game ever.

Originally appearing on the Atari ST in 1988, *Dungeon Master* is the classic standard against which all subsequent RPGs have been measured. It's no surprise then that a sequel is in the offing – but five years later!

Developed by the same team as the original, DMII looks at first sight like a direct copy. However, the changes to the game can be found once play begins. Promising truly intelligent monsters that chase you down and go off to get help when outnumbered FTL even claim that the game's artificial intelligence has had to be toned down because the monsters were too smart!

A publisher for the Amiga version hasn't been fixed yet but we'll bring you more details when we have them.

»

# CHRISTMAS LINE-UP

Commodore have admitted that last Christmas they had too many different Amigas on sale which served to confuse both retailers and buyers. This year they will be concentrating on three packages – the CD32, the CD32 plus FMV bundle, and an A1200 bundle. This means that once current stocks of stand alone A1200s have been run down it will only be available as part of a bundle.

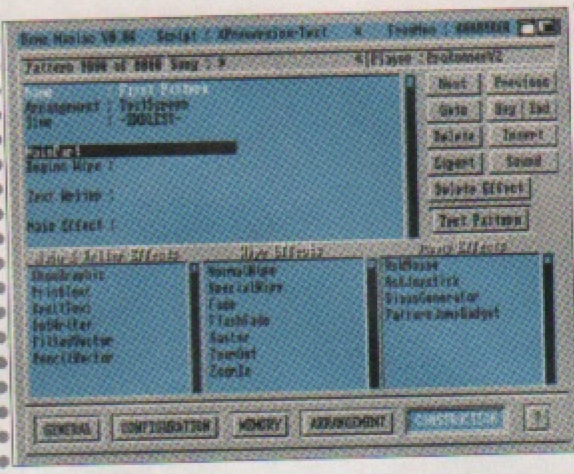
This package, called Desktop Dynamite, will be priced at £349.99 and contain the machine plus *Wordworth AGA*, *Print Manager*, *DPaint IV AGA*, *Oscar* and *Dennis the Menace*. With over £310 worth of software it appears to be a good bargain, however for the game heads out there it remains to be seen whether both *Oscar* and *Dennis* will live up to their initial promise.

## HARLEQUIN GETS V-LAB

Britain's foremost 24-bit board, the Harlequin Plus, has just become even better value thanks to Xi Electronics Ltd. The board includes a genlock, 8, 15 and 24-bit colour modes with palette mapping and an optional 4-bit overlay independant of the main display.

At £1275 the board already represents significantly greater value for money over its predecessor, but with the addition of the V-Lab Y/C framegrabber it becomes exceptionally reasonable.

Contact Xi on 0383 881768 for details.



# NEW DEMO MAKER

The original *DemoMaker* program was one of the most popular DIY programs ever for the Amiga, and now a new outfit called Complex Software from Germany have released what they claim is an even better program. *DemoManiac* can be used to create music demos, slide shows, disk magazines and multi-media presentations.

Better yet, the program can be used to create demos whose origins are completely unrecognisable. Apparently the program is very easy to use and will be distributed by Kompart UK. Phone Kompart on 0727 868005 for details.

# ELECTRONIC ARTS ABANDONS AMIGA AND PC FLOPPIES

In a surprising move, CU Amiga can exclusively reveal that Electronic Arts will shortly be abandoning all floppy development and, instead, redirecting their efforts into cartridge and CD development. Although the CD market has yet to establish itself as a viable market, EA have reportedly decided to run down the floppy side of their business because of the dramatic increase in piracy over the last few years. Moreover, the increasing complexity of programs has meant many games and applications appear on a number of floppies, dramatically increasing costs. Whether this decision will put in danger the release of *DPaint 5* is unclear, as Electronic Arts were unavilable for comment at the time of going to press.

## WE NEED YOU

CU Amiga welcomes any hot news or show details that you may have. Send them to NEWS, CU Amiga, Priory Court, 30-32 Farringdon Lane, London, EC1R 3AU. Alternatively you could fax information to us on 071 972 6701. If it's really important, you could phone us on any Friday to let us know what's up.

# CD ROM GROUP OPENS DOOR TO CD32

The CD ROM User Group (UK) is an organisation whose main aims are to provide information and technical assistance regarding CD ROM technology and to provide a source of discounted multimedia hardware and software.

With the uncertain future of the CDTV the group's value to Amiga owners was in doubt, but since the launch of the CD32, the group's commitment has received an infusion of enthusiasm. Membership costs £24.99 per year and apart from the above mentioned benefits, this fee entitles you to a monthly newsletter containing product reviews, free competitions, reader's letters, charts and a variety of dedicated CD ROM and multimedia information. The group also provides a software exchange and discount service (copyright permitting) whereby members can swap titles or buy them cheap.

Although there's not much dedicated CD32 software available at the moment, a lot of CDTV stuff will run on the machine so the group is well worth considering whether you own a CDTV, an A570 drive or a CD32 console.

Find out more by contacting: the CD ROM User Group (UK), 19 Faygate Close, Bexhill, East Sussex, TN39 5EE. Tel: 0424 730326.






# AMIGA BBC?



The BBC appears to be backing the Amiga to the hilt with two programs recently using or featuring Amiga technology.

The first, System '93, is a children's outdoor challenge game show currently running on BBC2 on Sunday mornings. International teams of children, aged from 9 to 13 years, join together to take part in a series of mental and physical agility tests – something like The Krypton Factor. Being an international game it's played without any formal commentary 'cos it would be impossible to select an appropriate language. Instead, an animated character called Herman, created on an Amiga, uses symbols and pictograms to lead the competitors and audience through the game.

Herman was created by Herman Charles Serrano who is also responsible for the graphics in *Predator 2* and *Wreckers*. He used an '040 A4000 so that he could utilise full 32-bit 256 colour and have him running at 25 fps.

The second series, called Harry, hasn't started its run yet but is lined up as one of the Beeb's premiere Autumn shows. Set in the North of England it stars Michael Elphick as a seedy newspaper reporter. It will feature special effects work by Ira Curtis Coleman, a professional Amiga user who was featured in our June issue. Additionally, one of the scenes in the show depicts a young boy at home playing on his Amiga. If you look carefully you should be able to see a certain famous Amiga magazine in his room!

# RALLY HO!

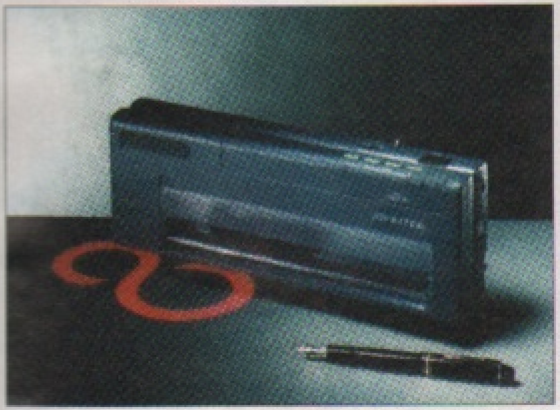
**Europress Software is about to release the official RAC Rally simulation. Timed to coincide with the race in November, *Rally* will be the second official RAC licence that Europress have produced. The original was published five years ago and sold phenomenally well with total sales over 100,000. Europress are putting a great deal of time and effort into *Rally* to ensure that it achieves the same kind of success.**

**The game itself will be a 3D race around snowy Welsh hillsides, forests and bleak moorlands. Featuring actual digitised shots of all the participating cars' interiors as well as sections of the route, *Rally* could be the first true driving sim on the Amiga. Programmed in 256 colours it will also include digitised speech from your co-driver and sound effects from the car and road. A standard 16 colour version will also be available. Look out for a full review soon.**





## LASER QUALITY PORTABLE



Fujitsu Europe have just launched a new portable printer which weighs only 1.2kg and which claims true laser quality from its 360 DPI output.

At only one inch thick, the device can rightly claim to be one of the world's slimmest portable printers. Named the Joyriter (no 'W'), the thermal transfer device is ideal for people on the move. It has a footprint less than one quarter of an A4 page in size, yet is capable of handling up to 20 sheets of paper with its optional sheet feeder.

Just to prove that they care about the environment, Fujitsu say that the ribbon cartridge uses eco-friendly replaceable ribbons. At £319 ex VAT the printer isn't too damaging to your wallet either!

For more details contact Fujitsu on 081 573 4444.

## NEW LOW COST A1200 RAM



Silica Systems have announced that they will be distributing what is probably the world's cheapest A1200 RAM expansion board. The Amitek RAM comes unpopulated (it doesn't have any memory on it) for only £79.95. You can then add up to eight megabytes of RAM in the form of SIMMS.

The Amitek RAM also has space on it for a maths co-processor running at speeds between 25 and 50MHz. As Silica's Andy Leaning says 'Many people who own an Amiga 1200 will have upgraded from a 500 and will already have SIMMS that they used with their A500 peripherals. This way they don't waste those costly chips.'

If you don't already have any SIMM chips, you can buy them from a wide variety of sources, although prices at the moment are artificially high thanks to a fire that destroyed a factory that makes the glue used in half the world's supply of chips.

For more detail on the Amitek RAM phone Silica Systems on 081 309 1111.

## IMAGINARY FRACTALS

**Version 4 of the *Scenery Animator* has just been released, and it has some exciting new features. Like *Vista Pro*, the program is a fractal landscape generator capable of generating complex animations. However, the program is unique in that it can import 3D objects (such as those created by *Imagine* or *Real 3D*. These objects can then be manipulated as part of an animation, giving the opportunity to create entire movies with the package.**

**The program also includes real-time editing and AGA support including 24-bit framebuffers. It costs £67.99. For details phone 0532 319444.**

## ULTRA FAST MODEMS A STEP CLOSER

Hayes Microcomputer products have just announced their plans to provide high speed data and fax modems that support V.Fast Class (V.FC) modulation for 28.8kbit/s data transmission. In ordinary language, that means that they are going to make some bloody fast modems!

As one of the larger players in the world modem market, Hayes has been working on high-speed transmission techniques for over seven years, and in 1992 they got together with Rockwell International to develop high speed 'data pump' technology.

Although they demonstrated that such devices were feasible by showing a 28.8k/bit modem last year, no standard had been agreed for the data format. One of the more serious problems in the 9600k/b modem market is incompatibility between different products and although standards have been proposed for the new 28k/bit modems nothing has yet been agreed. Therefore Hayes and Rockwell have collaborated in the development of an interim standard which has resulted in file transfer throughputs (presumably on Local Area Networks) of up to 115.2 kilobits.

To find out more about this technology contact: Hayes at Millennium House, Fleetwood Park, Barley Way, Fleet, Hants, GU13 8UT. Tel: 0252 775500.

## AMOS GETS NEW COMMANDS

Thanks to Solaris Software, AMOS users can now add an extra 160 commands to their program. A new program called *Craft* forms an extension to the existing AMOS system. Among other things, the new commands add Protracker and Soundtracker module control and a variety of Fractal/mandelbrot processing options.

**Craft will be distributed by Kompart UK. Tel: 0727 868005.**







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# PAL VIDEO TOASTER RUMOURS SCOTCHED

Rumours have been flying thick and fast this month about the existence of a PAL version of the American effects machine, the Video Toaster. In fact, no PAL version of the machine exists anywhere in the world, but a number of resourceful people are creating their own versions using standards convertors.

John of the 24-Bit Club in Scotland describes his attempts to get the Toaster working in PAL...

'After receiving a deafening silence from Newtek on the possibility of using the Toaster with a PAL A2000 motherboard, I ordered my Video Toaster and an NTSC A2000 motherboard from the States. In addition, I also needed a personal time-base corrector and this brought the total project price up to £1700.

A trip to Tottenham Court Road and I was able to get two Panasonic NV-W1 multi-standard video recorders for about £3000. This was the cheapest option at the time.

The Toaster software came on 8 disks and was very easy to set up. Now came the moment of truth: connecting VCR 1 (PAL/NTSC) to input 1 (after time-base correction) and connecting VCR 2 to the program output. Would it work?

My fears were groundless because everything worked first time. With this configuration multi-video effects (Toaster Effects) were not possible but I could still do effects between the Toaster's frame-store and a single video.

The main advantage of the system is that I now have access to *Lightwave*, the incredible 3D package that comes with the Toaster. *ToasterPaint* is really *Digipaint* under a new name. The character generator comes with a great supply of fonts and produces excellent titles. The frame grabber is one of the best that I've seen and the motion removal is first class.

True, the system was expensive to set up (nearly £5000), but it's paid for itself and my A4000/040!"

US distributors, Micropace, are the largest Video Toaster dealers in America and it seems that their UK division is looking into the possibility of shipping an integrated NTSC Toaster complete with Transcoder or standards convertor. The idea is not yet definite and obviously no prices have been set.

One piece of news that we can announce unequivocally is the arrival of the Screamer, a 3D rendering engine for the Toaster. The Screamer is a glorified processor dedicated to 3D rendering via the Toaster. What makes it special is its absolutely mind-numbing speed. With a clock rate of 150MHz controlling four 64-bit RISC processors the machine can render at twice the speed of a Cray Supercomputer!



With memory upgradeable to one gigabyte (that's over a thousand megabytes to you), there's room for the most demanding of Spielberg creations.

Compared to the millions of dollars required to own a Cray, the Screamer's ten thousand dollar price tag seems quite reasonable. Contact Micropace on 0753 551888.

# FREE HARDWARE FROM SUPRA CORPORATION

In a virtually unheard of move from hardware manufacturers, Supra Corporation are offering free upgrades to their SupraFAXModem V32/V32bis.

The offer applies to those modems purchased before September 15th 1992, but you can check whether or not you're eligible by typing AT13 to find out which ROM yours uses. If yours has a number 1.2H or 1.2J, then you already have the latest hardware. If not then you can claim your free upgrade (which comes in the form of an easy-to-plug-in ROM chip).



The new chip offers a number of performance enhancements as well as a couple of wholly new features. The enhancements include automatic decrease and increase of communication speeds according to phone line conditions and enhanced fax machine capability.

One of the nicest new features is called Silent Answer and it's a handy way of using a single line for both fax and voice transmissions. The hardware automatically detects whether an incoming call is a fax or voice signal and routes the call accordingly.

There are three ways of ordering the upgrade if you qualify:

1. Request the upgrade on the Supra forum of Compuserve (type GO SUPRA to enter the forum). 2. Order from the Supra BBS. Its phone number is 0101 503 967 2444. 3. Write to ROM Upgrade, Supra Corporation, 7101 Supra Drive SW, Albany, OR 97321, USA.

# THE ULTIMATE DTP PACKAGE

The long running battle between Gold Disk's *Professional Page* and Soft Logik's *Pagestream* is about to take an interesting turn with the release of *Pagestream* v3.0.

In a feature by feature comparison chart, *Pagestream 3* leaves *Professional Page* for dead on just about every one of the 130 or so points that were raised. Even more exciting from an Amiga user's point of view is the fact that the package was also compared against *QuarkXPress 3.1*; the premier desk top publishing package on the Apple Macintosh. Despite the fact that the Mac is traditionally thought of as the DTP machine, *Pagestream 3* again clearly emerged as the superior package. The software will retail for $395 (£200-300 depending on the exchange rate), and upgrades will be available from earlier version from $95 upwards.

You can find out more by contacting Soft Logik's UK distributor Meridian at East House, East Road Industrial Estate, London, SW19 1AH. Tel: 081 543 3500.

# TYPESMITH GETS A QUICK UPDATE

Although the original was only released a couple of months ago, version 2.0 of *Typesmith*, the scalable font creation program, is to be released in September.

The new program can auto-trace bitmapped fonts so that they are instantly converted in scalables. It's also up to 100% faster, especially on slower Amigas.

*Typesmith 2* now includes hinting which is a special feature that ensure that serifs and stems look great even at small point sizes. With its switchable auto-hint option you don't even need to worry about how hints are created; the program does it all for you. It will also retain the hints of any fonts that you import for editing.

Another invaluable new option is the facility to create bitmapped screen fonts from your structured typefaces. These can be saved in a variety of formats for use with all DTP packages, or can even be saved as standard Amiga fonts. Bitmap pictures can be imported and saved as bitmap fonts and vice versa.

Upgrades from version 1 (or 1.1) will cost $50, whilst the standard retail price is $199.95.

You can find out more by contacting Soft Logik's UK distributor, Meridian, at East House, East Road Industrial Estate, London, SW19 1AH. Tel: 081 543 3500.



# SPOTLIGHT AMIGA SHOW

For the first time ever, there's a show that has been organised to cater primarily for the more cerebral Amiga user. The *Spotlight Amiga Show* will be held in London's Novotel; a fairly small but cosy venue. Organised by a cartel of manufacturers and distributors, the show aims to cater for all users, including those who are more interested in productivity than playtime.

With a range of products on display, you can expect to see both third party and original hardware including a variety of scanners, digitisers, hard drives, video equipment and other peripherals. It will also present one of the first chances to feast your eyes upon Commodore's stunning new CD32 games console.

The show will provide visitors with a unique opportunity to see demonstrations of software and hardware configurations, and they will even be able to ask questions directly to some of the industry's foremost experts, including technical and design staff from the world's most innovative hardware and software designers.

For video buffs, there will be a very rare chance to see the Video Toaster in action. This promises to be a particularly valuable experience in light of the fact that the Toaster looks as if it will finally go on sale here via distributors Micropace.

The show won't be just for window shoppers though, therell be a wide array of hardware and software bargains on offer, many at substantially reduced prices. Of course, the show won't be all work; you'll be able to buy the latest games thanks to the Meridian Software. Amiga Warehouse will be there showing the Amiga 4000 and a range of monitors from Commodore and Ibek. They'll also have the hot new art package, *Brilliance*, reviewed elsewhere this issue.

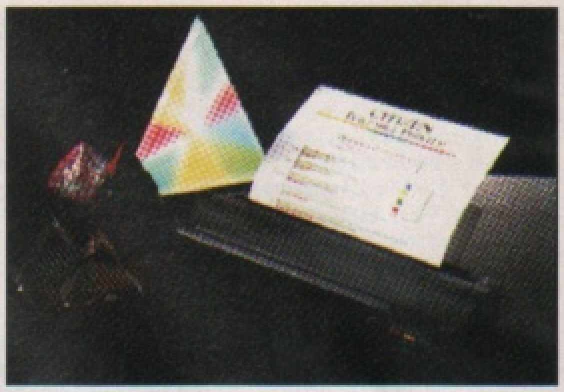
16/32, as one of the largest PD companies in Britain, will be launching their new catalogue of PD and Shareware. Golden Image will be selling their nine meg RAM expansions for the A1200, as well as two different colour hand scanners and a new optical mouse, whilst Gasteiner will be unveiling *True Paint*, another graphics package to rival *D-Paint*. Power Computing will also be selling RAM cards for all Amigas as well as their exciting new high density drives. Prima will be the first in Europe to unveil a new range of modems from a well respected American source, and they'll have the world exclusive on the Amiga scan convertor – a piece of kit that avoids the need for costly multi-sync monitors. Hi Soft will be selling Megalosound, their low cost, direct to disk recording system while Alfa Data Benelux will also be showing the hottest hardware from Belgium.

Other companies who will be there include Weekend Developments, Micropace, BSC, Syntronix and, most important of all, the CU Amiga crew will be out in force, ready and willing to help with your computing problems!

***Spotlight Amiga Show, Novotel, London, 17th October. Tickets cost £1.50 in advance or there will be a limited number available on the day of the show. Tel: 081 885 5098 for further details or to order your tickets.***

## 550 FREE TICKETS

Being the kind-hearted people that we are, we've managed to get our sticky mitts on 550 free tickets to the *Spotlight Amiga Show*. All you have to do to claim one is 'phone 081 885 5098, tell them that CU Amiga sent you and quote reference number: SAM1. If you're one of the first 550 people to phone, you'll get a free ticket to the show.



## CITIZEN ANNOUNCE WORLD'S FIRST FULL COLOUR PORTABLE

Citizen recently unveiled their brand new Notebook Printer II, a 105 character per second thermal transfer printer that uses monochrome or colour ribbon to produce output at up to 360 dots per inch; higher than many laser printers.

With an optional cut-sheet feeder and battery back-up, to mention nothing of its international adaptor which handles power inputs between 90 and 260 volts, the printer is ideal for the computer user on the move. It has a recommended retail price of £349+VAT and you can get more details from Citizen at Citizen House, 11 Waterside Drive, Langley Business Park, Langley, Berks, SL3 6EZ. Tel 0753 584111.

## EMC GETS FRIENDLIER

Premier font and clip art librarians, E.M. Computergraphic, are extending their standard service to offer new 'Pick'N'Mix' options on both scalable fonts and clip art.

The price per disk for these new tailored-to-suit services will be £7.50 and each disk will contain only the data that you specifically stipulate. For example, if you phone up and ask for pictures of the lesser spotted Peruvian water toad that's all you'll get.

EMC are also adding a massive amount of new material to their library in the form of 41 volumes of IFF clip art, 5 volumes of Adobe type 1 fonts, 6 volumes of CGfonts, 2 new .IMG clip art volumes for *Pagestream* users and 30 volumes of 'stunning photorealistic 256 colour images' for Workbench 3 and 24-bit work.

To find out more contact E.M. Computergraphic on 0255 431389.



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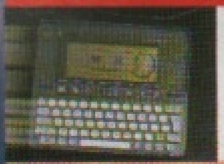
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# CODEMASTERS GO COSMIC

In a radical departure from their normal game style, Warwickshire-based softcos, Codemasters, have announced the release of a graphic adventure. Set to appear in November across most formats, *Cosmic Spacehead* tells the tale of a weird alien tourist who travels to Earth to prove its existence. Determined to grab the necessary evidence and return home a hero, Cosmic must travel across the galaxy, reach Earth and take home the goods. Using a 50s-style depiction of the future and space, *Cosmic's* graphics are just one of the elements that give this game an unusual feel. With a mix of arcade action and brain-straining puzzles it's sure to turn a few heads on release. Watch this space for more info next month. Codemasters can be contacted on 0926 814132.





# INTERWORD HD INSTALL

A number of readers have enquired about the possibility of installing InterWord on a hard drive. To install InterWord simply follow this procedure:
1. Create an InterWord directory (drawer) on your hard drive.
2. Copy all files from all four InterWord disks to the InterWord drawer on your hard drive. If you don't know how to do this follow this step by step guide. If you do, skip on to stage 3.
i) Open the Shell or CLI and type:
Copy Interword:(D#?|#?) TO dh0:InterWord ALL Copy Interword:#? TO dh0:InterWord
* Note. If you are using a different hard drive partition, insert the volume name of your hard drive everywhere that I've written dh0.
When you press return, you'll be prompted for the InterWord disk (disk 1). Insert it in the drive and all the files will be copied to your hard drive.
ii) Now type:
Copy "InterWord 2:#?" to dh0:InterWord
and again insert the disk when prompted.
iii) Type:
Copy "InterWord 3:#?" to dh0:InterWord
and insert disk 3 when prompted.
iv) Type:
Copy "InterWord 4:#?" to dh0:InterWord
and insert disk 4 when prompted.
3. Open the shell or CLI and type ED S/User-startup. If a user-startup file exists it will be loaded into the text editor ED. If no user-startup file already exists ED will open and create a blank one for you. Either way, you should now be faced by the ED screen ready for you to type.
4. Add the following lines to the user-startup file:
; Start InterWord Assignments Assign InterWord: to DH0:InterWord Assign "InterWord 1:" to DH0:InterWord Assign "InterWord 2:" to DH0:InterWord Assign "InterWord 3:" to DH0:InterWord Assign "InterWord 4:" to DH0:InterWord ; End InterWord Assignments
5. Select Save from the Project menu. 6. Once the user-startup file has been resaved, simply reset your computer, and from then on you'll be able to load the version of InterWord on your hard drive.

# AMIGA CHARTS TOP TEN

Dino Dini's *Goal!* drops three places down to number four with two new titles claiming the coveted first and second spots. Team 17's budget racing game, *F17*, zooms to the top of the charts with Krisalis' superb platform kickabout, *Soccer Kid*, following close on its heels.

**1. F17 Challenge (Team 17)**
**2. Soccer Kid (Krisalis)**
**3. Graham Gooch's Cricket (Audiogenic)**
**4. Goal! (Virgin)**
**5. Syndicate (Electronic Arts)**
**6. Nippon Safes (Kompart)**
**7. Flashback (US Gold)**
**8. Championship Manager '93 (Domark)**
**9. Gunship 2000 (Microprose)**
**10. Ishar 2 (Daze)**





# SHOW DIARY

**Live '93 Consumer Electronics Show, Olympia, London 16-20th, September, Tel 071 782 6687.**
**Amiga 93, Paris, 23rd-25th October, +33 1 64 34 03 42.**
**Future Entertainment Show, Olympia, London, 11th-14th November, 0225 442244.**
**Christmas International Computer Show, Wembley, London, 19th-21st November, 081 549 3444**
**Supergames, Porte de Versailles, Paris, 24th-28th November, 010 331 42003305.**
**Virtual Reality User Show, Novotel, London, 29th November-2nd December, 081 994 6477.**
**Computer Shopper Show, Olympia, London, 2nd-5th December, 071 373 8141.**

# STAR GOES COLOUR WITH STYLE

Star have just released a high quality thermal transfer colour printer available to the well-heeled home user as well as the smaller home business. The SJ-144 can print at up to three pages per minute at a resolution of 360x360 dots per inch. What is particularly remarkable about the printer is its use of special inks which are completely smudge proof and can be used for professional printing onto clothing such as t-shirts.
Because it uses three coloured inks and a separate black the printer is particularly good at shading and its use of true colour pigments are exceptionally vibrant compared to ordinary dye-based inks.






# INDI DIRECT MAIL

## Proudly Presents THE JAKKI BRAMBLES COLUMN

Hi, It's been quite a month in the Commodore marketplace, no sooner had we all been told that Commodore had lost their shirt than we have been inundated with masses of good news.

First we have the launch of **two brand new Commodore Amiga 1200 packs** one aimed straight for games market the other firmly at the more mature purchaser. **The Chartbuster Pack** is great value bundled with Nigel Mansell's World Championship race simulator, Trolls AGA and the all time favourite Amiga Challenge Pack. **Desktop Dynamite** reinforces the all round strength of the A1200 with a very powerful package based around Wordworth AGA, Print Manager, Deluxe Paint IV AGA, Oscar AGA and Dennis The Menace AGA.

It's good to see Commodore create such a clear distinction between the Amiga 1200 market and the games console market. soon to be dominated by the Amiga CD32.

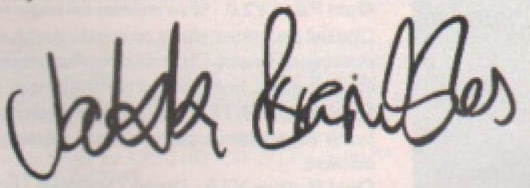
As I write this article the first of the CD32's are about to land in the UKwith a promised street date launch of the **first week in September.** The major news around this product is just how many of the softwaRe publishing houses are enthusiastically writing for it and of course that Commodore have decided to bundle 2 great software titles at launch.

Not to be outdone **INDI have added a third** so look foreward to receiving Oscar, Diggers and Lemmings when you take delivery of your New Amiga CD32.

The other item of news from Commodore does appear to be causing somE confusion. It is true that Commodore have appointed the giant **ICL** company to look after the warranty on their products but this only applies to Amiga CD32 and the Desktop Dynamite Pack. All other products and packs previously purchased or yet to be purchased will be covered by Wang.

Finally it was very sad to hear this week of the demise of Diamond Computer a well known advertiser in the Amiga Market. There is no doubt that the recession continues to cause the closure of many companies often without warning. Once again please be careful with your hard earned money and make certain that you follow the code printed in most magazines before you make that special purchase.

See you next month.



## AMIGA CD32

FREE SOFTWARE

Lemmings, Oscar, Diggers




The exterior may be sleek but lurking inside the Amiga CD32 is a technological wonder. At it's heart is the mightily powerful 68EC020 processor from Motorola. This contains the 32 - bit technology which has made the Amiga 1200 a runaway success throughout Europe.

Alongside it is Commodore's unique custom AGA (Advanced Graphics Architecture) chipset - comprising three chips nicknamed Paula, Lisa and Alice.

Together they make Amiga CD32 and awesome powerhouse of high speed graphics and stunning sound capabilities.

In fact, the machine can display 256,000 colours on screen (compared to Sega's Mega CD which can only display 64) and has a total colour palette of 16.8 million colours.

Amiga CD32 also comes with a chunky 2 Meg of RAM (that's15 times more than Mega CD) and a double speed drive.

**SPECIFICATIONS:**

* 14 MHZ 68EC020 processor
* 2 Megs 32 - bit chip RAM
* 2 Joystick ports/controller ports
* S- video jack
* Composite video jack
* RF output Jack
* Stereo audio jacks
* Keyboard connector/ auxiliary connector
* Full expansion bus
* Headphone jack
* Headphone volume control
* External brick power supply
* Internal MPEG FMV expansion capability
* Multiple session disc capability

## INDI MULTI MEDIA CLUB

A true 'One Stop Shop' for all members. On offer each month with an ever increasing product range , members can obtain software to cover every application including **Morphing, Rendering, Raytracing, Video** and a PD Library second to none. The Club also offers a very comprehensive range of videos including the **Cult Manga Titles, Music, Features and Special Interest**. There really is something to suit every ones taste. Membership costs only £10 and each member receives a quality gift on joining, even though there is absolutely no commitment to buy at any time. If you would like to be a part of this exciting club then call **Indi on 0543 419 999**

## INDI IS A MEMBER OF THE DMA

As with most industries, the UK's personal computer industry has its share of cowboys operating in the mail order sector and at the receiving end a line up of despairing consumers who have suffered at their hands.

A personal computer is a sophisticated and expensive item and provided the purchaser is dealing with a reputable and accredited supplier, buying a computer by mail order can be a perfectly safe and cost effective exercise. The Direct Marketing Association (DMA) was set up in April 92 to set and maintain high standards for the sake of the industry and society at large, and to ensure that we can continue to regulate our own activities on the basis of proper professional responsibility.

Membership of the DMA is not conferred lightly - it is a privilege which entails responsibilities, to the consumer as well as to the industry. The foundation for this must be good practice. DMA members are required to abide by the highest standards as laid down in the DMA's code, enforced on members by The Authority of the DMA a separate body with an independent Chairman, and which is an assurance of vigorous self regulation and professional responsibility. DMA members also agree, as a condition of membership, to abide by The British Code of Advertising Practice and The British Code of Sales Promotion Practice: to apply the Mailing Preference Service file when appropriate: and to subscribe to the Advertising Standards Board of Finance (ASBOF) and to the Mailing Standards Levy as applicable.

The DMA symbol can only be used by members. Printed on stationary, advertising and other promotional material it demonstrates that these companies conform to the Association's high standards and are subject to the DMA's Code of Practice thus enhancing the companies credibility with customers, suppliers and of greatest importance, the consumer.

Since the symbol was introduced last June, it has become synonymous with quality , professionalism and and responsibility. While it cannot be shown in any way which will become a sign of best industry practice and of strict adherence to DMA codes of conduct. The symbol represents authority for members and reassurance for consumers. It has been a high valued mark of confidence signifying to the consumer the truly professional edge of the industry.

Alison Slan
(Director of Public Relations,DMA)

# CREDIT AVAILABLE ON 6,12, 18, 24, 36 MONTHS.
## WHY NOT RING NOW FOR A QUOTE. SAME DAY RESPONSE.

# AMIGA PERIPHERALS & ACCESSORIES

## NEW FROM MICROBOTICS!!!. M1230XA ACCELERATOR LAUNCH!!

Microbotics beats the competition in price/ performance/ features and configurations. INDI is very pleased to announce the availability of the new 68030 accelerator product for the A1200: the microbotics M1230 XA (call it the "XA" for short). 50 Mhz as standard! Huge 128 MB memory design is standard (the biggest memory space in any A1200 peripheral) just look at these specifications and prices!

M1230 XA W/40 MHZ EC 030 OMB **INDI PRICE £239.99**
M1230 XA W/40 MHZ EC 030 4MB **INDI PRICE £369.99**
M1230 XA W/40 MHZ EC 030 8MB **INDI PRICE £599.99**
M1230 XA W/50 MHZ MMU 030 0MB **INDI PRICE £349.99**
M1230 XA W/50 MHZ MMU 030 4MB **INDI PRICE £479.99**
M1230 XA W/50 MHZ MMU 030 8MB **INDI PRICE 6711.99**

## MBX1200.

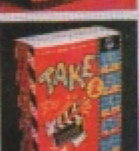
The original and best floating point unit and memory upgrade for the Amiga A1200. Available with 0,4 or 8 MB of 32 bit Fast RAM and a choice of floating point units.Now complete with real time clock (RTC)

MBX1200Z 68881 14 MHZ 0MB **INDI PRICE £109.99**
MBX1200Z 68881 14 MHZ 4MB **INDI PRICE £249.99**
MBX1200Z 68881 14 MHZ 8MB **INDI PRICE £449.99**
MBX1200Z 68882 25 MHZ 0MB **INDI PRICE £169.99**
MBX1200Z 68882 25 MHZ 4MB **INDI PRICE £309.99**
MBX1200Z 68882 25 MHZ 8MB **INDI PRICE £519.99**
MBX1200Z 68882 50 MHZ 0 MB **INDI PRICE £249.14**
MBX1200Z 68882 50 MHZ 4MB **INDI PRICE £379.14**
MBX1200Z 68882 50 MHZ 8MB **INDI PRICE £579.99**
68882 FPU UPGRADE 50 MHZ **INDI PRICE £169.99**

## AUDIO VISUAL



**MEGAMIX.** Low cost, hi spec digital effects cartridge plugs into the printer port of the Amiga. Allows stereo sampling from almost any musical source.
**INDI PRICE £29.99**



**TAKE 2.** Animation package is a must foe computer artists and enthusiasts of all ages. As used in Rolf Harris Cartoon Club.
**INDI PRICE £37.99**



**VIDI AMIGA 12.** The ultimate low cost colour digitiser for the Amiga. "The best value full colour digitiser on the market" AMIGA FORMAT.
**INDI PRICE £75.99**

**ROMBO VIDI AMIGA 24(RT).** For the more serious user, this 24 - bit version will again capture from from any video source with true photo realistic images! A staggering 16.7 million colours can be utilised with incredible results. Full AGA chipset support.
**INDI PRICE £239.99**



**ROCTEC ROCGEN PLUS.** As above but with extra features such as tinting and signal inversion. Allows for real time editing of graphics. Compatible with all Amigas.
**INDI PRICE £129.99**

**ROCTEC ROCKEY.** The ultimate accessory for Amiga / Video fans. Separate RGB controls to chroma key on any colour.
**INDI PRICE£249.99**

**ROMBO VIDI AMIGA 12 (RT).** Based on the best selling Vidi Amiga 12. This all new version offers real time colour capture from any video source. Full AGA chipset support as standard for all A1200 / 4000 users.
**INDI PRICE £139.99**

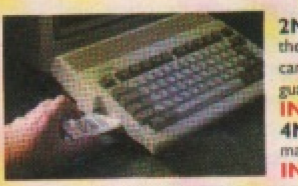
## DISK DRIVES




**ZAPPO EXTERNAL FLOPPY**
You've seen all the reviews on this popular and affordable second Amiga drive. Compatible with all Amigas.
**INDI PRICE £59.99**

Quality: 9 out of10. Exceptional value for money. AMIGA COMPUTING JAN 93

## AMIGA PERIPHERALS



**2MB SMARTCARD.** The original and still the only fully PCMCIA compatible memory card for A600/ A1200.Comes with lifetime guarantee. Beware of cheap imitations.
**INDI PRICE £129.99**
**4MB SMARTCARD.** Same as above but maximum 4MB.
**INDI PRICE £199.99**

**ZAPPO 601**
Trapdoor upgrade for the A600, 1Mb with RTC **INDI PRICE £49.99**
**ZAPPO 601 INC** As above only 512K, no clock **INDI PRICE £29.99**



## 1084ST MONITOR.



Commodores original and best selling colour stereo monitor.
Now includes swivel and tilt stand for total ease of use.

**INDI PRICE**
**£189.99**
(£179.99 if purchased with A600 / A1200 / A1500)

# OPAL VISION




## NEW FOR OCTOBER RELEASE!

The already acclaimed Opalvision Board takes three further leaps into the future with the official launch of the Opalvision modules. With truly awesome capabilities the Amiga can now become the most professional 24 - bit video graphics power station ever!

## The NEW OPAL VISION system(Rev.2)

The amazing Opalvision 24 - bit graphics board and software suite has been updated and is now even better value for money.

**The software suite now includes:**

**Opal Paint V2.0** - Now includes full magic wand implementation and Alpha Channel that allows photo compositing with selectable levels on a pixel by pixel basis.The new Chrominance effect allows absolute, real time control of image contrast, brilliance and re - mapping of colours.

**Opal AnimMATE V2.0** - ofering real time play back of animations created by ray tracers, landscape generators, morphers and all other 24 - Bit software.

**Opal Hotkey V2.0** - Display OpalVision graphics anytime with key combinations.

**Opal Presents** - Comprehensive, icon - driven presentation package

**Imagine V2.0** Imagine 3D is the most popular 3D rendering software, that now supports OpalVision.This is a full version that would cost £300 if purchased separately.

*"Quite simply, it's a spectacular product - Amiga Computing*

*"Undoubtedly the finest, most professional paint program to arrive on the Amiga" - Amiga Format*

*"Professonal quality at this Price can't be turned away" - Amiga User International*

*"The verdict was unanimous - brilliant" - Amiga Shoppe*

**INDI PRICE £599.99**
PACK INCLUDES IMAGINE V2.0

## MORPH PLUS

You've seen Micheal Jackson's video, you've seen the television adv using the latest techniques in morphing, now now you can create th same results but at a fraction of the cost. Morph Plus is the latest a the ultimate in this technology. Whether you are a professional art or just want to experiment at home Morph Plus is a must.
**INDI PRICE £129.99**



## DELUXE PAINT IV AGA

Combines powerful tools with an intuitive interface so both professionals and beginners alike can get superb results quickly. New enhancements to the software include the ability to paint and anima in 4696 colours in the Amiga's HAM (Hold and Modify)mode. New animation features also include metamorphosis allowing you to cha one image into another. You determine the number of frames and DPaint IV does the rest.
**INDI PRICE £63.99**

## ART DEPARTMENT PROFESSIONAL

The ultimate in image processing providing many key benefits to Am users working with pictures.With ADPro you can read, write and c vert between most common image file formats with unmatched fle bility. Full support for JPEG image makes it possible to maintain an image library in full 24 - bit colour without needing massive hard dr storage. Typically a 600 Kb image can be compressed down to 40 K
**INDI PRICE £139.99**

## REAL 3D V2

Is a full featured 3D animation, modelling amd rendering program. With Real 3D V2 you can produce high quality images and animatio of three dimensional models with an astonding level of realism. Ima creating an animation that shows a handfull of balls bounce down a flight of stairs to the bottom. Gravity, colliision, deflection and the e dcity of the balls are all automatically calculated by the program!



**INDI PRICE£299.99**

## SCALA Multimedia 200 (MM200)

Is the ultimate on professional video titling. The eminent design of typefaces, the unlimited choice of typographical details, the high res tion and the more than 80 exciting wipes result in video captioning exquisite quality. No wonder that Scala is used by leading television stations around the world.

**INDI PRICE £399.99** also available
**SCALA Pro V1.3**
**INDI PRICE £169.99**

## VIDEO DIRECTOR

With Video Director, anyone with an Amiga, a camcorder and a VC can quickly and easily catalogue and edit the best moments from th video tapes. Video Director is extremely easy to use, you can actua control your camcorder and VCR from your Amiga screen . Video Director comes with everything you need to get started. The hardware to control your camcorder* and VCR is included
**INDI PRICE £119.99**
*Camcorder must have a LANC or Control L compatible port

**Professional software is imported and sometimes subject t delay. Confirm delivery at time of order.**

TEL: 0543 419 999 FAX: 0543 418 079

**TERMS AVAILABLE OVER 6, 12, 24, & 36 MONTHS SUBJECT TO STATUS.**

**WHY NOT RING FOR A QUOTE. SAMEDAY RESPONSE. (SEE EXAMPLE)**

# Panasonic Quiet Colour Printing

We researched the colour printer market at great depth to find a colour printer good enough to cope with Amiga's powerful output, yet at an affordable price.
We found the perfect printer in the KX - P2180 and KX - P2123 quiet printers.
We then considered that if you were going to buy a Panasonic printer you would probably need a quality word processing package to use with it. We found that too, with 'Wordworth' yet at a retail price of £129.99 we thought that might be a little too expensive on top of your printer purchase! So together with Panasonic we decided to give a copy of 'Wordworth' free with every Panasonic printer. How's that for added value?

## Panasonic KX - P2180



***WORDWORTH AGA COMPLETELY FREE!**

**WITH PANASONIC QUIET PRINTERS.** The writers choice. The ultimate word processor for AMIGA computers. Wordworth is undoubtedly the ultimate word / document processor for the full range of AMIGA computers. The graphical nature of WORDWORTH makes producing documents faster and easier, with the enhanced printing fonts (including full Panasonic KX - P2180 and KX - P2123 colour printing support). Collins spell checker and thesaurus, no other word processor comes close. "Without doubt this is one of the best document processors for the AMIGA, Today" (Amiga Format)

**NORMAL RRP £129.99 inc. VAT**

The new Panasonic KX - P2180 9 -pin quiet printer. Produces crisp clear text in mono or in 7 glorious colours with new quiet technology. THe new KX - P2180 is typically 15dBa quieter in operation, than the competition.

* **Fast Printing** Speeds 192 CPS NLQ
* **Colour Printing** 7 colour palette (blue, red, green, yellow, violet, magenta,black)
* **Quiet printing** Super quiet 45 - 48 dBa sound level (most matrix printers are typically in excess of 60 dBa)
* **6 Resident Fonts** Over 6,100 type styles using Courier Prestige, Bold PS, Roman, Script and Sans Serif Fonts.
* **3 Paper Paths** Paper handling from bottom, top and rear for total flexibility
* **1 Year Warranty** for total peace of mind

**INDI PRICE £169.99**

## Panasonic KX - P2123




**INDI PRICE £219.99**

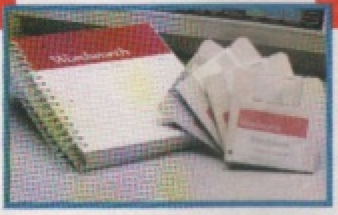
The new high performance Panasonic KX - P2123 24 pin. Quiet colour printer offers leading edge quiet printing technology at an affordable price

* **Fast Printing Speeds** 192 CPS draft, 64 CPS LQ and 32 SLQ.
* **Colour Printing** 7 colour palette (blue, red, green, yellow, violet, magenta, black)
* **Quiet Printing** Super quiet 43.5 - 46 dBa sound level (most matrix printers are typically in excess of 60 dBa)
* **7 Resident Fonts** Over152,000 type styles using Super LQ, Courier Prestige, Bold PS, Roman, Script, and Sans Serif Fonts.
* **24PIN Diamond** Printhead High performance and high quality output
* **1 Year Warranty** for total peace of mind.

# Panasonic LASER PRINTER

## KX - P4410 LASER PRINTER





WORDWORTH AGA COMPLETELY FREE WITH PANASONIC LASER PRINTERS The writers choice. The ultimate word processor for AMIGA computers NORMAL RRP £129.99 inc VAT

## KX - P4430 LASER PRINTER



Once again INDI have joined together with Panasonic to offer all Amiga owners the most outstanding Laser Printer offer ever. We are now able to offer high quality, professional laser printing at affordable prices. We are also giving away a copy of Wordworth with every Panasonic Laser Printer purchased (RRP £129.99). Whether you are looking for a laser printer to handle word processing, DTP, presentation or complex graphic applications - the Panasonic range offers you the power to meet your requirements.

**KXP - 4410**

* 5 pages per minute
* 28 resident fonts
* Optional 2nd input bin(total printer capacity 2 x 200 sheets)
* Low running costs
* Parallel interface
* Optional memory expansion to 4.5 Mb (0.5 as standard)
* HP laserjet II Emulation

**INDI PRICE £549.99** inc. VAT

Imminent price increase. This price while stocks last.

**WORDWORTH AGA COMPLETELY FREE WITH LASER PRINTERS**

Panasonic 2 YEAR ON-SITE WARRANTY

**KXP - 4430**

* Satinprint (optimum resolution technology)*
* 5 Pages per minute
* HP Laserjet III Emulation, PCL 5
* 8 Scalable fonts & 28 bitmap functions
* Optional 2nd input bin (total printer capacity 2 x 200 sheets
* Optional memory expansion to 5.0 Mb (1 Mb as standard)

**INDI PRICE £699.99** inc. VAT

Imminent price increase. This price while stocks last.

*(Satinprinters use optimum resolution technology to produce truly outstanding print quality. This software technique smooths away traditional jagged edges on curved characters and lines by varying the printed dot size

**WORDWORTH AGA COMPLETELY FREE WITH LASER PRINTERS**

# Panasonic PRINTER ACCESSORIES



1) **PANASONIC AUTOMATIC SHEET FEEDER**
Automatic sheet feeder for KXP 2180/ KXP 2123 holds 80 A4 sheets. **INDI PRICE £89.99**

2) **PRINT DUST COVER**
Specially tailored quality dust cover for Panasonic KXP 2180/ KXP 2123 printer. **INDI PRICE £8.99**

3) **PRINTER STAND**
2 piece printer stand. **INDI PRICE £9.99**

4) **PAPER PACK**
500 sheets quality A4 paper. **INDI PRICE £9.99**

5) **CONTINUOUS PAPER**
2000 sheets 1 part listing paper. **INDI PRICE £19.99**

6) **PARALLEL PRINTER CABLE**
To be used when connecting Amiga to Panasonic printers. **INDI PRICE £8.99** (£5.99 if purchased with a printer)

7) **PANASONIC COLOUR RIBBON**
Colour ribbon for KXP 2180/ KXP 2123. **INDI PRICE£18.99**

8) **PANASONIC BLACK RIBBON**
Black ribbon for KXP 2180/ KXP 2123. **INDI PRICE £9.99**

**SAVE ££££S ON THE FOLLOWING ACCESSORY PACKS**

**PACK 1**
**PANASONIC COLOUR RIBBON PACK**
Contains 6 colour ribbons for the KXP 2123 RRP £119.99.
**INDI PRICE £89.99** SAVE £30!!!

**PACK 2**
**PANASONIC RIBBON PACK**
Contains 2 black and 4 colour ribbons for KXP 2180/ KXP 2123.RRP £99.99.
**INDI PRICE£69.99** SAVE £30!!!

**PACK 3**
**PANASONIC DELUXE ACCESSORY PACK**
Contains automatic sheet feeder, 2 black ribbons, 2 colour ribbons, 1 dust cover, 2 piece printer stand. RRP £169.99 **INDI PRICE £139.99** SAVE £30

Add £2.50 carriage to all printer accessories or combinations thereof

**TEL: 0543 419 999 FAX: 0543 418 079**

CUSTOMER CHARTER

INDI Direct Mail is original and very exciting. Before you buy mail order you must first be confident that you will receive the product you've ordered and that the supplier still be there in the future, should you need them.

A mail order purchase from INDI is a safe and secure decision, and here's why.

INDI is a wholly owned subsidiary of a public company now in it's tenth year of trading and specialising in the supply of computer products.

With a turnover approaching £30 million per annum, we have the resources and the purchasing power to offer you the best deals, deliver them next day nationwide and always be around when you need us.

The INDI sales team have been trained to

## SALES AND SUPPORT

take your order with the utmost care and efficiency. All stock offered for sale is held in stock, centrally at our group ware house complex and is available for next day delivery, direct to your home or business. If at any time we are out of stock your money will not be banked until the product is available (a point worth checking should you be tempted to purchase elsewhere)

General information regarding product is available from our sales team, however technical support is always on hand should you need assistance.

All prices quoted are inclusive of VAT.

**INDI TELESALES**
**TEL 0543 419999 FAX 0543 418079**
**9am - 7pm Monday to Friday**
**9.30am - 4.30pm Saturday.**

## CREDIT FACILITIES

INDI are now able to offer competitive credit facilities on all orders over £200. All credit facilities are subject to status and applicants must be over the age of 18.

If you would like a quote simply call our our sales line where acceptance can normally be notified within the hour. We are also able to offer Credit Insurance to cover repayments in the event of sickness or unemployment.

| AMOUNT* OF CREDIT | 12 MONTHS | | 24 MONTHS | | 36 MONTHS | |
|---|---|---|---|---|---|---|
| | MONTHLY PYMNTS | TOTAL PAYABLE | MONTHLY PYMNTS | TOTAL PAYABLE | MONTHLY PAYABLE | TOTAL PYMNTS |
| 200 | £22.00 | £264.00 | £12.00 | £298.32 | £9.31 | £335.63 |
| 500 | £54.99 | £659.88 | £31.06 | £745.44 | £23.27 | £837.72 |
| 1000 | £109.98 | £1319.76 | £62.13 | £1491.12 | £46.54 | £1675.44 |

APR 29.9% WRITTEN QUOTATIONS AVAILABLE ON REQUEST
*After deposit paid

## AFTER SALES AND SPECIALIST SERVICE

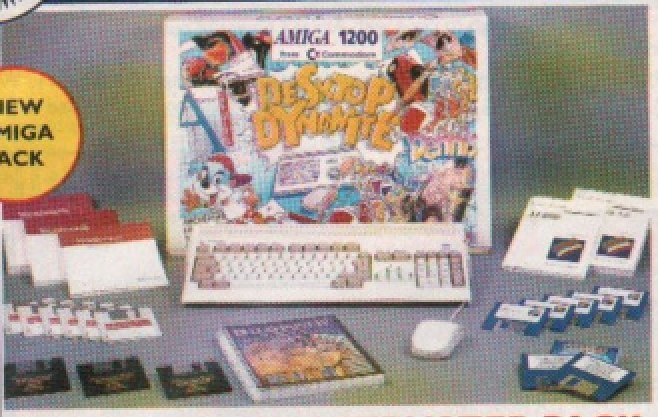
All products are guaranteed for 12 months. Some products carry a 12 months at home service and repair guarantee (where indicated). In the unlikely event that any product purchased from INDI arrives at your home faulty, we will collect from your home and replace the product completely free of charge.

As part of our policy of continual product development and refinement, we reserve the right to change specifications of products advertised. Please confirm current specifications at the time of ordering.

Prices are valid for month of publication only.

***PAY 10% NOW AND NOTHING MORE FOR 3 MONTHS**
***ORDERS OVER £200 SUBJECT TO STATUS**

# AMIGA A1200




NEW AMIGA PACK

## NEW DESKTOP DYNAMITE PACK

This great new pack from Commodore must have at least £300 wor
software bundled with it.

**A1200 STANDARD FEATURES.**
* 68020 Processor * PCMCIA Slot. * 2MB Chip RAM. * 3.5" Internal D
* AA Chipset. * Built in TV modulator. * Alpha numeric keypad.
* 12 Months at home maintenance.

**FREE**
* Wordworth AGA * Print Manager * Deluxe Paint IV AGA * Oscar AG
* Dennis The Menace AGA

**INDI PRICE**
**£339.99** or from **£12.95*** per month
*(Credit price based on 36 monthly payments APR 29.8%.
Total repayment £466.20 and 90 day deferred payments.

## AMIGA 1200 CHARTBUSTER PACK

**AMIGA 1200 SD**
* Nigel Mansells World Championship Racing
* Trolls
* Amiga Challenge Pack

NEW AMIGA PACK

**PACK INCLUDES:** * International Sports Challenge * Paradroid 90 * Cool Croc Twins * Indianapolis 500

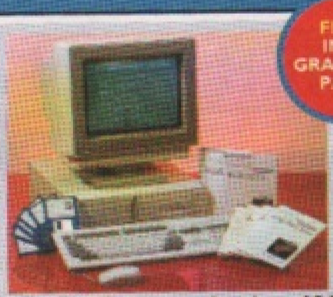
**£289.99** or from **£11.04*** per month
*(Credit price based on 36 monthly payments APR 29.8%.
Total repayment £397.92 and 90 day deferred payments.

**NEW LOW PRICE HARD DRIVE OPTIONS**
**A1200 80 MEG HD** **INDI PRICE ADD £200.**
**A1200 120 MEG HD** **INDI PRICE ADD £230.**

**OFFICIAL A1200 HD SYSTEMS**
The Amiga 1200 supplied by Indi Direct Mail now includes the official (leg
Commodore installation disk and hard drive utility manual. Indi are prou
to be an official supplier of Amiga 1200 Hard Drive systems, that inclu
the official software, documentation and on - site warranty.

80 Mb and 120 Mb Hard Disk upgrades available on any A1200. Upgrade does not invalidate your Wang or ICL warranty on A1200 and Hard Disks. Phone for a

# AMIGA A4000



FREE INDI GRAPHICS PACK

### It's here - The new Amiga 4000/030

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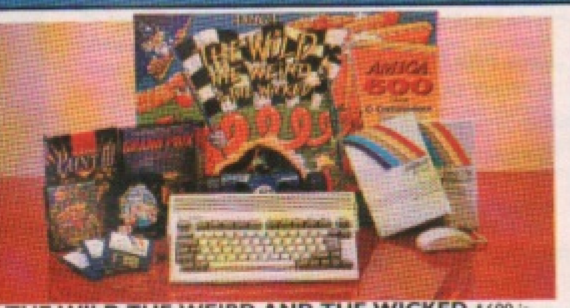
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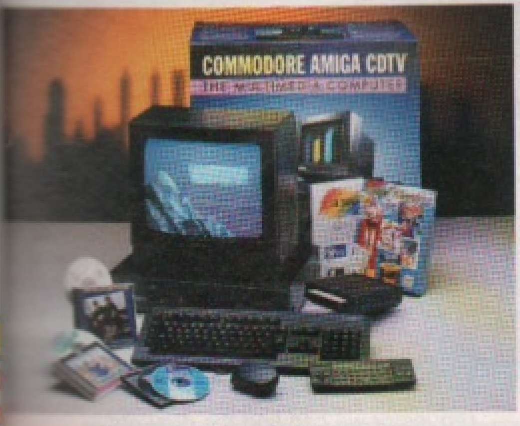
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If you are thinking of buying CDTV or already own one you'll be pleased to know that INDI stock all CDTV accessories and software that are available from manufactures. We believe in CDTV and we therefore continue to support this exciting product. You will always have a source of product for your CDTV from INDI.

**L to R**

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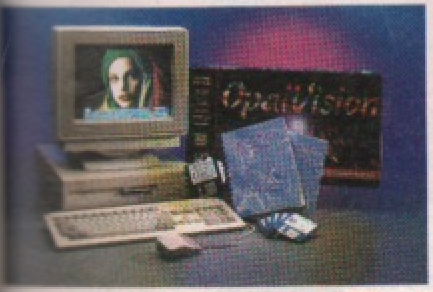
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The 1630 is a 68030 accelerator board running at 25Mhz complete with a 68882 FPU and 2Mb of 32 - Bit fast RAM suitable for the A2000. THe 2630 board brings the performance of the Amiga 2000 upto nearly that of the A3000, ideal when running professional applications. An additional 2Mb of 32 - Bit fast RAM can be added to the 2630 board, giving a total of 4 Mb of fast RAM.

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The A2286 AT emulator kit offers IBM AT compatibility on the Amiga 2000 and 3000 systems, running at 10Mhz with 1Mb RAM and CGA graphics. The A2286 emulator also includes a 5.25"1.2Mb floppy drive and MS DOS operating software.

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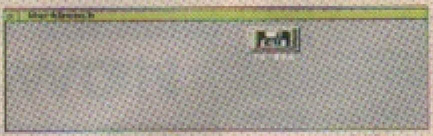
# COVERDISK 66




**Colour pictures from a black and white printer – impossible! Not if you've got this month's Coverdisk. And if you haven't got a printer then enjoy yourself with the image processing routines.**

# FLEXIDUMP

## QUICKSTART GUIDE TO LOADING DISK 66

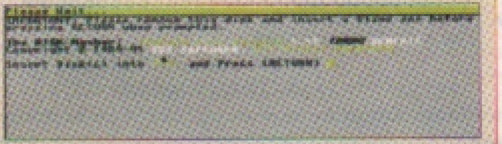


1. Before you start, find a disk suitable for copying *Flexidump* onto. Now write protect your Coverdisk by moving the plastic tab on the back so that you can see through the hole.

2. Boot up your Amiga with the Coverdisk and double-click the disk icon to open its window.

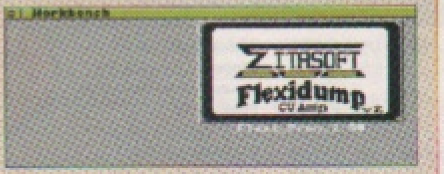


3. You will see a large disk-like icon for *Flexidump*. Double-click on this and the process of restoring the *Flexidump* disk to full size will begin.

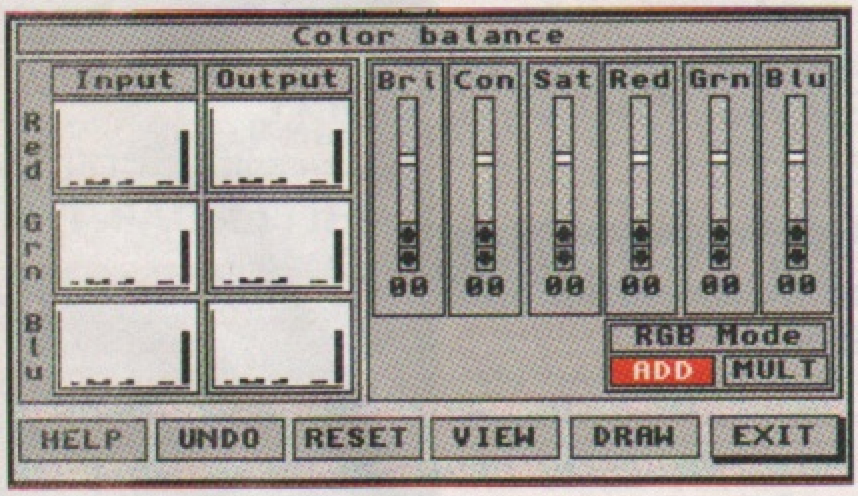


4. A Shell will open and the compressed file holding the program is copied from df0: to ram:. When this has been done you will be asked to insert the blank disk.

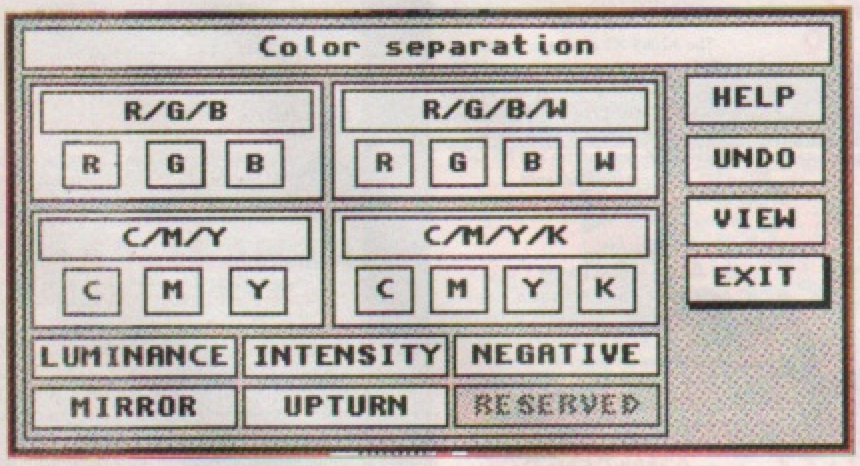
5. Remove the Coverdisk from df0: and put in the blank disk. Follow the on-screen instructions.




6. When the operation is complete you can reset your computer to boot from the *Flexidump* disk.




You can use *Flexidump* to perform image processing on your iff screens.




Colour separations are the basis for professional printing and Flexidump provides a wide variety of separation options.

## THREE IN ONE

The *Flexidump* disk contains three different programs, Flexi(.Prg), Flexicat(.Prg), and Custom(.Prg). The first is the main printer control and graphics program.

Flexicat is a program based around Flexi. It allows you to automatically print out all the picture files within a particular directory, in a similar manner to a photographer's contact sheet, as little pictures on one page.

The Custom program enables the user to adapt one of the Flexi printer drivers for their own particular model of printer. This is only used if the printer is not one directly supported by *Flexidump*.

Double-click the Flexi icon and after a few seconds of loading you will see the main control screen. This is divided into eight sections.

If we are to use the program properly then we must first load in a suitable printer driver. Flexi ignores the settings in Amiga Preferences and uses its own to achieve superior output.

With the right mouse button held down we can access the pull-down menus at the top of the screen. By selecting the file/load driver we call up a file requestor that is already set for the Flexicus driver. This is designed to work with most Epson-compatible 9-pin colour printers. By clicking on '>> Cus' in the requestor we can find the drawers that contain the Color, Mono, and Bubblejet drivers.

Clicking on '>> Mono', for example, will cause a list of drivers for single colour printers to appear. These can be scrolled through by using the up/down arrows or the slider gadget. If you see a driver that matches your printer then click on it and then on 'OK'. If you want to get out of that drawer click on '<<' to go up a level in the directory.

With the correct driver loaded the program is prepared for use with basic settings. These should not need to be altered during normal use. I'll explain what all the gadgets and buttons do later.

## GOOD KING TUT

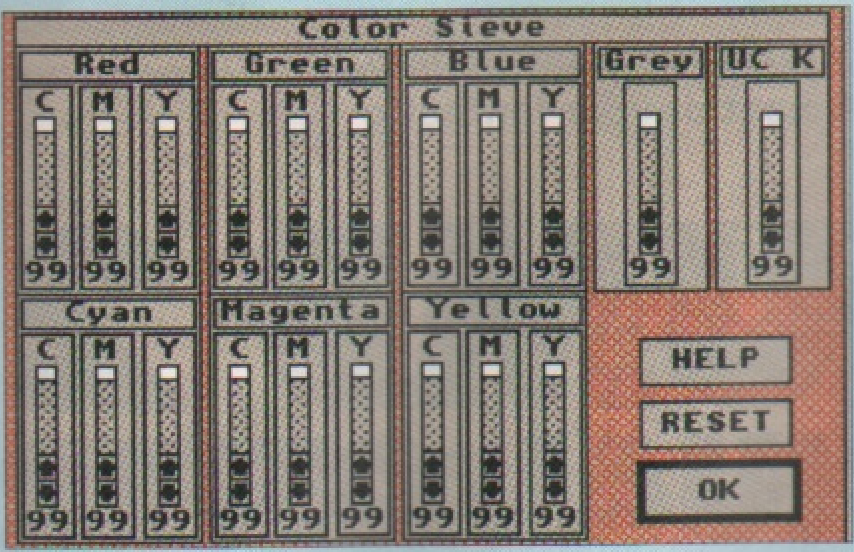
An IFF is loaded using the requestor called up by the pull-down menu 'File/Load Pic'.

On the disk there is a PIC drawer with some sample IFF pictures in it. There is another drawer in that called '4AM'. This contains the King Tut drawing I used as the example.

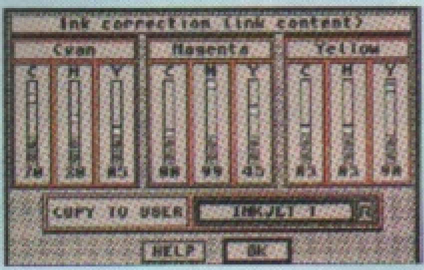
Okay, so we've got a picture loaded. Let's print it. Select 'Page Dump' from the pull-down menu labelled 'Print'. A new screen appears, titled 'Select screen area', with a small representation of our IFF in the middle of it. Surrounding the picture is a frame and a host of boxes with arrows in them. By click-








The colour sieve screen allows you to adjust the colour printing to suit your printer.




## DISK VIRUSES

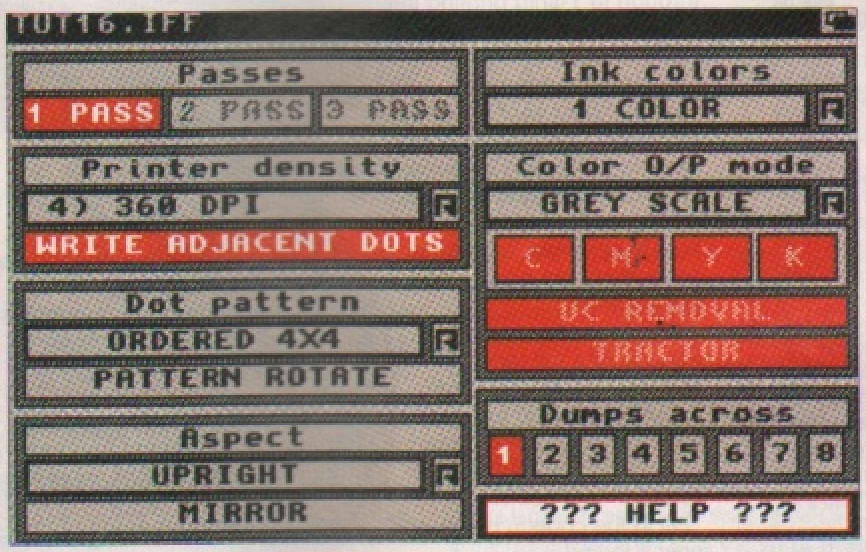
CU AMIGA makes every effort to ensure that viruses do not get on to our disks, and we aim to include a virus checker on the disk whenever possible. Unfortunately, because of the nature of viruses, the virus killers can only be updated to include a new strain when it has already become known. Fortunately we always have the most advanced virus checkers available when the disk is compiled and every program goes through rigorous testing before it appears on our coverdisks. However, we can accept no responsibility for possible damage incurred by viruses which may have escaped our attention.

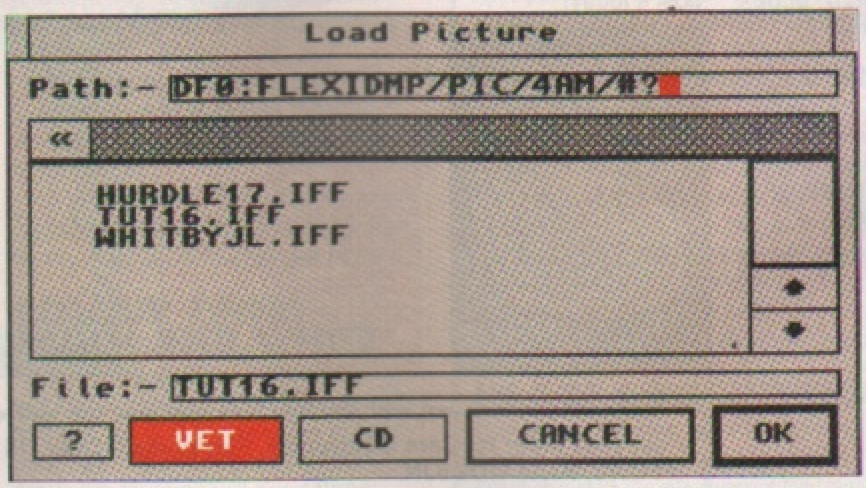
## IF YOUR DISK WON'T LOAD

If your coverdisk doesn't seem to work as it should, then follow this simple guideline. Firstly, remove all unnecessary peripherals, such as printers, modems, etc. Follow the instructions on these pages to the letter, and if after that you find that the disk still doesn't work, call the PC Wise helpline on 0685 350505 between 1030 and 1230 Monday to Friday. If they advise you that the disk is faulty, then pop it in an envelope with a covering letter explaining what the problem is to: CU DISK RETURNS, PC WISE, DOWLAIS TOP BUSINESS PARK, MERTHYR TYDFIL, MID-GLAMORGAN, CF46 2YY. Please include 28p per disk to cover postage and packing (55p for overseas readers). Your disk will be tested and a new, working one dispatched to you as soon as possible. Please note that neither we nor PC Wise accept responsibility for any disks damaged due to negligence on the part of the user.



These screenshots show the effects of the image processing routines.




The program offers a variety\ of printing and dither patterns each of which is ideal for different types of image. Click the dot pattern button to look at the choices.

ing on these we can resize the frame and/or move it around our picture. This can also be done by clicking on 'Manual', which will take us to a larger view. By dragging the frame we can crop the image to the size we want.

If a smaller frame is required then by clicking on the 'Frame' gadget we can reduce its size. The 'Reset' button will restore order if you get in a muddle.

Once the picture is correctly framed, a click on 'OK' will take us to the next screen. Here we can set the distance from the top of the page to where our picture will start to be printed. This can be left alone so click on 'OK' again.

The next screen allows us to shift the position of the print left from the edge of the paper.

Again this is best left set to its default, so click on 'OK' for access to the 'Dump dimensions' screen.

We can resize the entire picture to our heart's content here. The 'Guess' and 'Ratio 1:1' boxes are highlighted as default so that any changes we make, either to the width or length gadgets, will ensure that our output comes out the correct shape.

The 'Pages' box displays how much of our sheet of paper will be taken up with the print. A full width print of 19.8cm will have an 'X' value of 1.0, while its length, 'Y', will be 0.5 or 11.2cm – roughly half A4.

The next screen, 'Gamma correction', can be by-passed for now. We are then presented with the 'Copies' screen. Here we can determine the number of printouts that get sent to the printer, or to disk. A very handy feature.

If you are working late and don't wish to disturb the rest of the household with the clatter of your dot-matrix, then you can send Flexi's output to disk for printing the next day. The file is reloaded using 'Spool', which is an item in the 'Print' pull-down menu, along with 'Poster'.

## WOT NO PRINTER!

Apart from being a comprehensive printer manager, Flexi is also a useful image processing tool. With an IFF loaded into the program it is possible to adjust colours and greyscales with easy to use sliders and buttons, then save the results.

The Image pull-down menu is where to access these goodies. 'View' allows you to see the whole picture as it will be printed, or saved to disk.

'Separate' will withdraw the particular information you want from an image just by clicking on one of the many buttons.

The colour separation screen also has facilities for inverting an image physically and chromatically.

The colour operators can only be done one at a time. If you don't like the result, then a click on undo will get back your initial image. However, if you decide to save the result with 'File/Save Pic' then make sure you give the new picture a different name, otherwise you will lose the original.

Color balance gives you the opportunity to vary the brightness, contrast, and saturation (hue) of the picture. Plus the chance to alter the »

**We've teamed up with Care Electronics, Flexidump's publishers, to bring you this amazing offer. Make the most of your fantastic cover disk by getting hold of the manual.**

# FLEXIDUMP 2 MANUAL OFFER

**ONLY £9.95**

## INK AND RIBBON OFFERS

Care also supply a number of colour ribbons and inks for use with a wide range of printers. Here's a selection of them.

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PRINT ON NORMAL PAPER, IRON ON T-SHIRT

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| 4 Colour Star LC200 9 Pin | £19.95 |
| 4 Colour Star LC200 9 Pin (Reload) | £12.95 |
| 4 Colour Star LC200 24 Pin | £29.95 |
| 4 Colour Star LC200 24 Pin (Reload) | £14.95 |
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| 1 Colour Star LC10 | £11.95 |
| 1 Colour Star LC200 9 Pin | £11.95 |
| 1 Colour all Star 24 Pin | £11.95 |
| 1 Colour Epson FX80/LQ400/MX80 | £11.95 |
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| 1 Colour Epson FX100 | £11.95 |
| 1 Colour Panasonic KXP 1080 | £11.95 |
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**T-SHIRT RIBBONS NOW AVAILABLE IN RED, BLUE, GREEN, BROWN, YELLOW AND BLACK FOR A WIDE RANGE OF PRINTERS.
ALL PRICES INCLUDE VAT AND CARRIAGE**

## COLOUR PRINTER RIBBONS

Don't throw away your plastic printer ribbon cases when the ribbon wears out. Just take the top off, take out the old ribbon and reload it with a new one. It's simple. Full instructions supplied.

RELOADS FOR:

Star LC200 9 Pin 4 Colour (Normal Ink)
1 Reload – £5.99, 5 Reloads – £23.95

Star 24 Pin 4 Colour (Normal Ink)
1 Reload – £6.99, 5 Reloads – £29.95

Citizen Swift 4 Colour (Normal Ink)
1 Reload – £6.99, 5 Reloads – £29.95

Panasonic 4 Colour (Normal Ink)
1 Reload – £6.99, 5 Reloads – £29.95

Ink ribbons also available in gold, silver, magenta, orange, purple, brown, green, blue, red for a wide range of printers.

Special re-ink for Panasonic printers and Star LC200 9 Pin black 59ml bottle ......£14.95.

For further details or to order any of these printer inks and ribbons please contact Care Electronics, Dept CUA, 15 Holland Gardens, Garston, Watford, Herts WD2 6JN.
Tel: 0923 894064. Fax: 0923 672102.

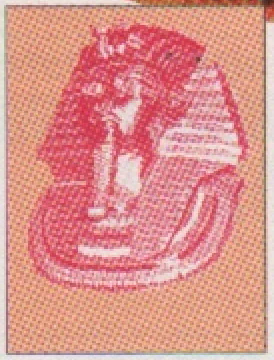
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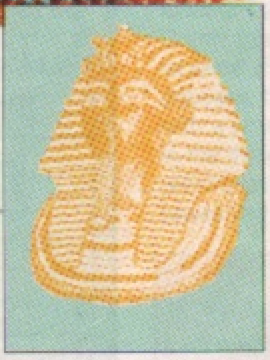
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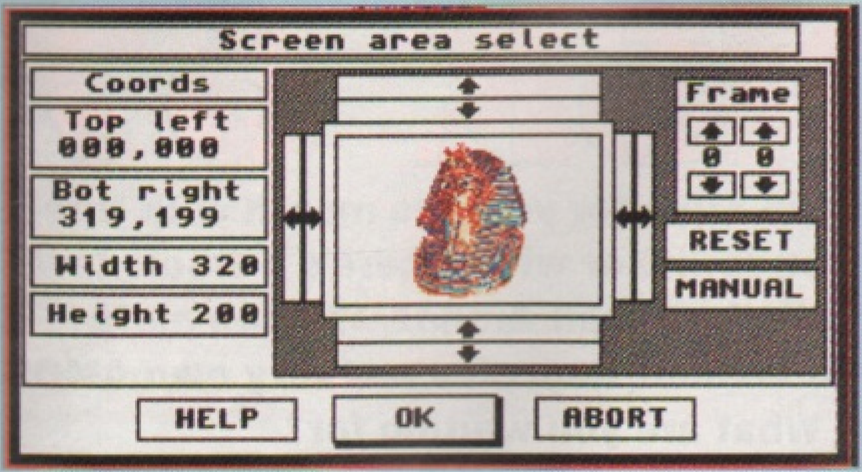


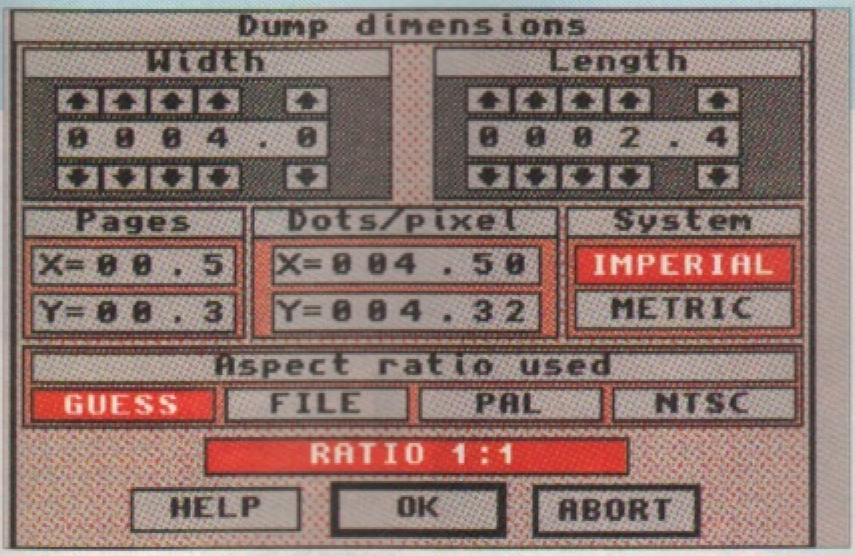


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red, green, and blue values in two modes: add and multiply. I won't spoil the fun by telling you what they do. Each operator has a slider control, but the effects are not immediately obvious. A click on the 'draw" button will change the picture, while 'reset' will take you back to your original and undo to the result of the previous operation.

The next menu, Option, gives access to three more screens. 'Page' lets you set up the number of lines and columns your printer can put onto a particular size of paper. The initial setting is for A4.

'Ink' has a number of presets for various types of printer accessed through a gadget at the bottom of the screen. The idea of this is to help you match the colour output of your printer to those colours you see on TV/monitor.

If a preset does not quite fit the bill, then you can manually adjust the sliders to get the best results by trial and error. When the optimum fit is found the settings should be copied to disk.

The last item in this menu, Sieve, is another bank of sliders that can filter the colour information being sent to the printer.

It is possible to send just the black outlines within a picture to the printer, by reducing all colour values to zero.

## COLOUR FROM BLACK AND WHITE

Flexi can be used to get colour output from a mono printer. The gadgets in the Color O/P mode come in to play now. To achieve a polychromatic printout you will need three separate colour ribbons or ink cartridges; one for each complimentary colour: cyan, magenta, and yellow.

The picture is then printed with the yellow ribbon in the printer, and Flexi is set to output only the yellow part of the image. When it is finished the paper is wound back to exactly the point it started from. The cyan ribbon is inserted and the print done again with only cyan colour output.

# GADGET GLOSSARY

***This is the bit where I explain what most of the buttons and gadgets do.***

## PRINTER CONTROL TERMS

*Passes*: refers to the number of times the printhead moves over the same strip of paper. Some printers require more than one pass to get a high resolution, usually 9-pin, while 24-pins and inkjets only need one. This will be set by the driver loaded, although you can experiment by changing it to 1 or 2.

*Printer density*: again refers to resolution, and this is measured in dots per inch (dpi). For draft copies, or special effects, a lower resolution will often suffice and save on ink and time too.

*Dot pattern*: determines what sort of dither will be used to print the picture. These patterns are used to give the impression of more colours, or greys, than can be output by the printer. Flexi has four patterns in two sizes, 4x4 and 8x8, plus a random dither.

The larger the pattern the more colours are generated, but at a loss in picture resolution. Some patterns do not work well with certain printers or particular sizes of print. So experimentation is required. A rotated pattern will often provide better colour output than a standard one.

*Aspect*: refers to the way the picture can be printed out. It can be normal, upside down, rotated, or mirror image. This last one is often used for printing onto Tee- shirts so that the resulting graphic is the correct way round when ironed onto the garment.

Ink colours: will be set by the driver. A mono printer will have one, while colour printers can have three or four. Either on one ribbon or in ink reservoirs if of the inkjet variety.

*UC Removal*: is a technique that saves ink, and improves blacks and greys. It does this by using black ink instead of heavy combinations of C, M, and Y.

*Tractor*: informs Flexi if you are using the tractor feed instead of friction feed. This method is less accurate for positioning so compensations are made.

*Dumps across*: sets the number of pictures that can be printed across a page.

## IMAGE PROCESSING TERMS

*Brightness*: if adjusted, will alter all the colour intensities uniformly up or down, but with a loss of detail.

*Contrast*: affects the intensities of the colours, either pushing them towards the same value, to give a flat uniform image, or at the other extreme, to one primary colour with maximum intensity. Again with a loss of detail if altered.

*Saturation*: is the intensity of a colour. The higher the saturation the more vivid the colour. A low value will give no colours – grey scale – if brightness and contrast are neutral.

*Luminance*: shows up the bright and dark areas of the image.

Intensity: reveals how bright the individual colours of the image are, although at first glance it may appear similar in effect to luminance.

*Gamma correction*: is a method of brightening a picture without affecting the detail too much. Colours are also altered without any colour in particular reaching a maximum or minimum intensity.

# COVERDISK 67



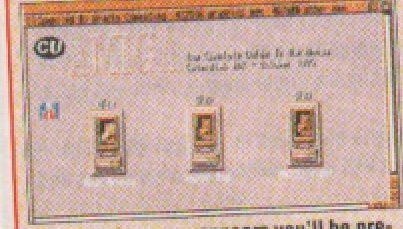

**We've got a triple treat in store for you this month with three, yes three, games for you to tinker with. There's a whole level of the maddeningly-addictive *Mean Arenas*, the complete underground section of *Wonder Dog*, plus our very own AMOS scroller, *Amosteroids*. What are you waiting for?**

## YOUR QUICKSTART GUIDE TO LOADING DISK 67

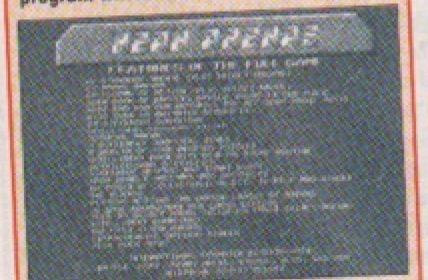
**Getting started with disk 67 couldn't be easier. But before you get too eager owners of 1Mb machines must remove all external peripherals before attempting to load the disk. Some of the programs are very memory intensive and will require every drop of memory that your Amiga can give.**



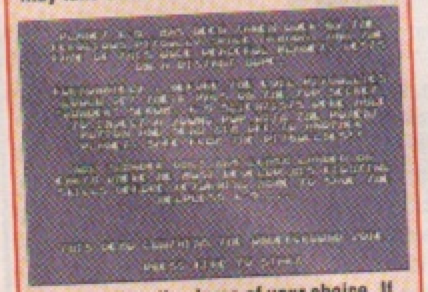
**1. Switch off your Amiga for at least 30 seconds. Now turn it on again. When your machine asks you for a disk give it what it wants – stick disk 67 in the drive – and wait for our special CU AMIGA menu screen to appear.**



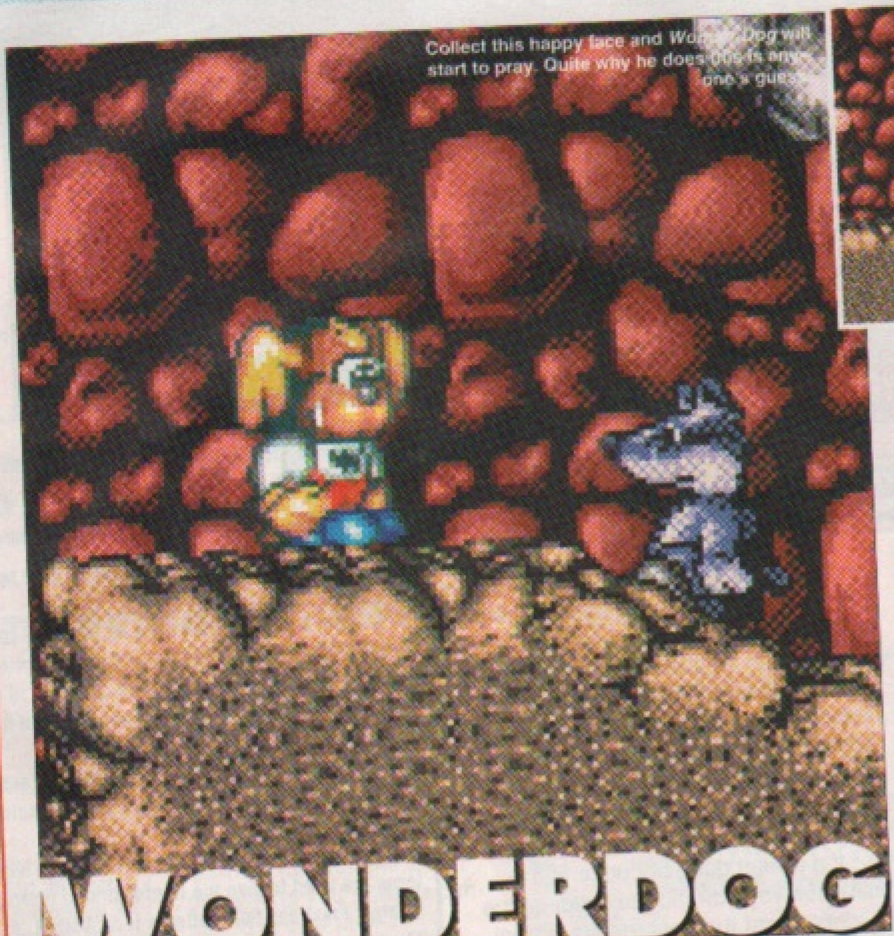
**2. When the menu appears you'll be presented with a choice of three programs to play. To load the one you want, simply move the mouse pointer over the icon and left click. If that's a bit too technical, try pressing F1, F2 or F3 and the appropriate program will load.**



**3. Wait for the program to decrunch. It may take a few seconds. Be patient!**



**4. Here it is – the demo of your choice. If your machine has failed to load the program please refer to the panel 'If your disk won't load' elsewhere in the coverdisk pages.**




Collect this happy face and Wonder Dog will start to pray. Quite why he does this is anyone's guess.

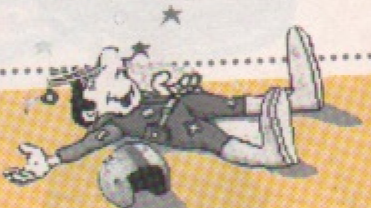


## WONDERDOG

In conjunction with Derby-based Core Design, the name behind *Chuck Rock*, we've grabbed a fully playable level of their new platform extravaganza, *Wonder Dog*. The peaceful planet of K-9 has been invaded by the evil Pitbullies in an attempt to gain control of the amazing 'Wonder' serum. In the nick of time a young pup is injected with the serum and sent to a far-off world.

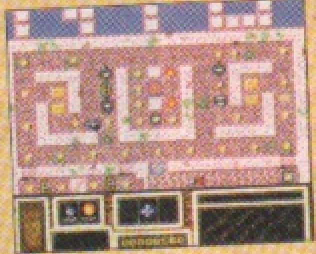
Unfortunately, the ship crashes on Earth and the new *Wonder Dog* must find some way to get back home to beat the Pitbullies silly and save his planet. Hoorah!

In our exciting demo *Wonder Dog* is stuck in an underground cavern



## MEAN ARENAS

Set a hundred years in the future, *Mean Arenas* places you in control of a desperate game show combatant as he battles for his life and money. Sounds familiar? Well, the *Running Man*-type plot paves the way for a fantastic top-down arcade puzzle blaster. Developed by ICE, *Mean Arenas* is the ultimate in game show mayhem.



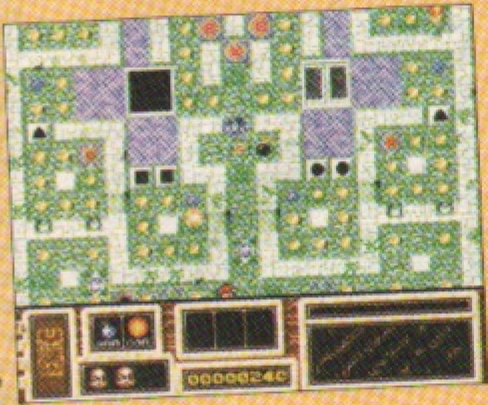
**The first arena is multi-levelled. The lower half is covered in man traps just waiting to snap closed on your leg.**

The aim of the game is to race around complex mazes avoiding the mad robotic guardians and collecting as much cash as you can. If you think that sounds simple you'd be wrong. You start each game without any weapons and must collect what you can from the arena you're in, be careful with their use though as supplies are limited. The mazes are not just complex they're deadly too. Laden with traps and danger zones each arena is huge and you'll really need the scanner in the corner of the screen if you don't want to end up running around like a headless chicken.

The controls are very easy to grasp – up, down, left and right– and they do exactly what you'd expect. The firebutton releases any weapons you've picked up.

If you want to know more about what to do in the arenas load up your disk and play through the tutorial sections we've provided. These'll tell you exactly what to avoid!

This massive demo is laden with neat touches, for example, Buzz and Bob, the game show's hosts have their own sampled speech and you have the choice of playing in either the normal arena or the speed arena where you're really up against the clock. So, what are you waiting for?



**At the start of Arena 01 there's a couple of bombs to collect. So pick 'em up.**

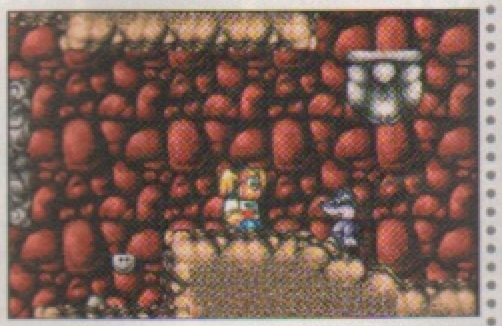


Find a dark patch on the ground, pull down and *WD* will start digging. That's funny, me terrier never did it like this.

with no apparent way out. To make matters worse there's hordes of nasty slimy creatures who don't take too kindly to our young hero. It's not all bad news though, 'cos this Dog is far from defenceless. Apart from his heavy beetle-crushing boots, he's got a winged headpiece to help him jump further and a magic star that bounces towards his enemies.

The aim of this demo is to guide *WD* from one end of the complex to the other, dodging or whacking the slimy attackers whilst collecting as many goodies as you can.

The controls are so simple a two year-old could understand 'em.

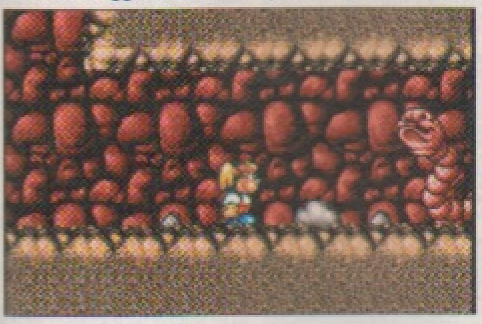


There are many enemies to avoid. This grey badger is just one. A quick blast with a magic star will soon sort him out.

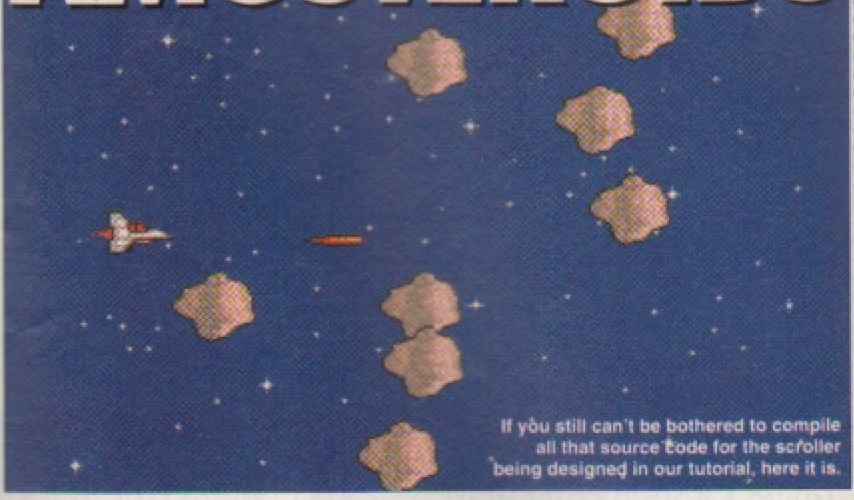
Simply grab your joystick and push left or right to move, up to jump and down to duck. Some areas have very low roofs so you'll need to take a long run up then duck and slide to get through them. If you want to use the magic star press the fire button. It will shoot out when you release it again. The longer you hold the fire button down for the more powerful the resulting blast will be.

If you find yourself stuck with no apparent way on, look around for a dark patch on the ground, stand over it and duck. You'll soon find out how dogs bury their bones! Have fun!

Cor, this worm must have been following the Schwarzenegger Guide to body building.



# AMOSTEROIDS



If you still can't be bothered to compile all that source code for the scroller being designed in our tutorial, here it is.

For the past few months our AMOS expert has been helping you get to grips with this amazing product. This month we take a look at constructing a horizontal shoot 'em up and to help you get the grasp of what the finished product should look like we've compiled it and stuck it on this month's coverdisk. It's a mix of *Project X* and *Asteroids*. It's not exactly fantastic, but it will give you a flavour of what to expect. If you want to mess about with the source code itself you'll find that on disk 66.



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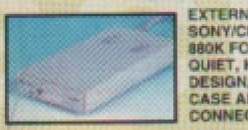
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### A4000/040

The flagship of the Commodore Amiga range. Features include an EC68040 CPU running at a blistering 25Mhz, 16.8 million colour pallete, fully expandable using Zorro III slots. A full range of hard drives are available.

| | |
|---|---|
| A4000/040120M HD | £1919 |
| A4000/040 170Mb HD | £1939 |
| A4000/040 250Mb HD | £1979 |
| A4000/040 330Mb HD | £2069 |

### A4000/030

The standard workstation version of the 4000. Fitted with an EC68030 CPU running at the same speed as it's big brother and also featuring a 16.8 million colour pallete and similar upgrading options. A full range of hard drives are also available.

| | |
|---|---|
| A4000/030 85Mb HD | £899 |
| A4000/030 170Mb HD | £979 |
| A4000/030 256Mb HD | £1039 |
| A4000/030 330Mb HD | £1128 |

### A4000 UPGRADES

CD ROM DRIVE INCLUSIVE OF SCSI CARD £399

MATHS CO-PRO EASY PLUG-IN
25Mhz PLC 68882 £79
40Mhz PLC 68882 £139

PC EMULATORS

| | |
|---|---|
| 386SX PC EMULATOR | £199 |
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| SVGA GRAPHICS CARD | £49 |

ALL PC EMULATORS COME SUPPLIED WITH MANUALS AND MS DOS 5

MEMORY (SINGLE SIDED)

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|---|---|
| 1Mb SIMMS | £59 |
| 4Mb SIMMS | £139 |

## AMIGA A1200 SERIES

The Amiga A1200 represents the future of the Amiga series. It sports many features of the high-end 4000 series yet it maintains the Amiga value-for-money price tag. It's features include: 32 bit technology, 68020 CPU, AA chipset which allows 256 colours on screen from a pallete of 16.8 million colours, 2Mb of chip RAM. A full range of IDE hard drives are also available.

| | |
|---|---|
| A1200 STAND ALONE PACKAGE | £349 |
| A1200 40Mb HD | £448 |
| A1200 85Mb HD | £528 |
| A1200 127Mb HD | £544 |
| A1200 170Mb HD | £588 |
| A1200 250Mb HD | £638 |

All Amiga A1200s are supplied with HD PREP software and SOFTWARE DEMON'S own Return-To-Base guarantee. All hard drives are guaranteed for 3 years under a Return-To-Base

A1200+80Mb Hard Drive as supplied by Commodore with a 1 year on-site warranty £589

## AMIGA A600 SERIES

THE WILD, THE WIERD AND THE WICKED. This is the ideal entry level package. It contains a varied selection of software that displays the best of the Amiga's abilities, which includes Deluxe Paint III, Microprose's Grand Prix and Putty.

| | |
|---|---|
| A600 STAND ALONE PACKAGE | £189 |
| A600 WILD, WIERD & WICKED | £215 |
| A600 40Mb HD | £279 |
| A600 80Mb HD | £369 |
| A600 120Mb HD | £419 |

## A600 & A1200 UPGRADES

| | |
|---|---|
| 2Mb PCMCIA RAM CARD | £109 |
| 4Mb PCMCIA RAM CARD | £169 |
| 1Mb PCMCIA STATIC RAM CARD | £109 |
| 2Mb PCMCIA STATIC RAM CARD | £169 |

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# A MEETING OF MINDS

PART 1

**Every six months, CU Amiga invites a group of Amiga enthusiasts to join us for a bit of an informal get-together where we provide the food and copious amounts of alcohol and they provide the (sometimes heated) debate. This time, we thought we'd get out our tapedeck and record the proceedings for posterity. What follows is the first part of a no-holds barred conversation about all things Amiga. Naturally, with the CD32 uppermost in many people's minds, this first installment concentrates on Commodore's make-or-break console.**

***Mathew Broomfield***: What chance do you think the CD32 has of being a success?
***Jolyon Ralph***: Well I think a lot's going to hinge on the marketing.
*< General murmurs of agreement >*
***Stewart Sockett:*** And if C's previous track record is anything to go by...
***Jolyon***: I think they're gonna be in trouble.
***Stoo***: They are in trouble now.
***David Ward:*** Have they got the money to promote it?
***Jolyon***: They're reportedly spending 7 million on marketing up till Christmas on 1200 and CD32.
***John Kennedy***: How does that compare with Sega?
***Jolyon***: I think that CTW said that figure would be about the money Nintendo or Sega would put behind the bar at a launch, which is pretty close.
*< General laughter >*
***Jolyon***: But it's not so much the money they spend, it's the quality of the advertising that they do. Commodore's has been particularly bad in the past. Their marketing and advertising people have not been particularly wonderful.
***John***: Is that biased or is that generally accepted?
***Jolyon***: You have my view on it, what does everyone else think?
*< Everyone agrees with Jolyon >*
***Andy Leaning:*** I think it depends how they spend it. If it's used in the right way it's more than enough to get CD32 established.
***Jolyon***: The other thing they need to do – I know they're working on it – is to make sure the machine comes with a very good demo disk. There's no point having a box. I mean at the moment new machines are going out without any software at all. They need a decent demo so when it's in the shops next to Sega's MegaCD and other machines if Commodore's new baby has got the right demo disk it can out perform the others.
***Mat:*** So have they actually commissioned this disk?
Jolyon: They are doing a demo disk.
Mat: Do you know who's putting it together?
***Jolyon***: Commodore are putting it together themselves. I've seen a pre-release version. It had things like CDXL movies on it but I don't know whether they've got the rights to use them on a commercial disk.
***Wavey Davey (Dave Winder):*** How does it compare to the CDTV demo? I mean, I know the 32's gonna be better but how does it compare with that particular demo, which was excellent?
***Jolyon:*** I haven't seen anything as good as that yet. In fact, I've seen machines going out with that demo to demonstrate the CD32.

**One of the main problems with CDTV was that Commodore failed to convince games developers to support the machine.**

***John:*** Whenever they have Amigas in shops you rarely have any demos playing but you'll see a Sega Megadrive playing something, and a SNES playing something...
***Stewart:*** If you see the Amiga doing anything it'll be displaying the Workbench insert disk prompt!
***John:*** It looks bad.
***Wavey Davey:*** The same with CDTV, all you ever got was the cube floating 'round and that's it.
***David:*** But at least they made an effort to address that particular issue by making the sequence a little flashier, and thought they'd solved the problem!
*< Laughter >*
***Jolyon:*** Well that's still no excuse. I mean on the CD32 it's easier 'cause you can just fit a CD. Anyone at Dixons will know how to put a CD into a CD player.
*< Laughter >*
***Stoo***: Except perhaps the, um, sales staff!
***John:*** A few passers by could do it for them...
***Jolyon:*** But yeah, it shouldn't be difficult. People are now used to games machines. Sega have people going around the shops making sure all the machines are set up and running and displaying properly. Now I know that Commodore have put money aside to make sure there are people permanently going around checking that



## WHO'S WHO

**We invited some of the Amiga's top name developers along for our conference, but they couldn't come, so we had to do with this unlikely shower of freeloaders. If you want to put a face to the name and find out exactly what they do for a living, read on..**

these machines are running in Dixons, that they are not just sitting there with empty screens, and that they are running the demo disks or they are demonstrating software.
***Wavey Davey:*** What happened to the team of pretty girls that they were sorting out?
***Jolyon:*** That may be the same team – the ones who were going around demonstrating CDTV to everyone.
***Wavey Davey:*** 'Cause that was a pretty good idea. They actually had a team of girls trained up to go 'round to places like Dixons and demonstrate the machine. Only trouble was, they didn't know anything about the machine at all so they were talking a load of bollocks.
***Mat:*** Which was ideal for Dixons 'cause it matched the staff's level of knowledge [*Allegedly - Ed*].
***Jools:*** I think the only way it [CD32] could really work is if developers give it some serious commitment, and in turn Commodore put some more money up. But at the moment I think everybody's taking such a tentative approach, including Commodore, it's not going to work.
***Jolyon:*** One of the main problems with CDTV was that Commodore failed, initially deliberately, to convince games developers to develop titles for CDTV.
***Eric Mathews:*** Commodore weren't even talking to them. Commodore Europe weren't talking to games developers!
***Jolyon:*** They weren't?
***Eric:*** They were talking to a few of the 'boys club' that exists within publishers, but they weren't talking to actual developers.
***John:*** So the CDTV wasn't a games machine?
***Eric:*** No. And the same thing applies to the 1200, CD32. I mean there are very few games developers who have been given the opportunity to get machines in advance.
***Jolyon:*** Oh yeah, it's been a real fight to get any information, any machines out of Commodore. We got ours in the US.
***Eric:*** That problem's now being addressed, but it still exists for other developers who are developing specifically for the Amiga, who've been successful on it.
***Mat:*** This question of information release is an interesting one because I went over to a Commodore club in America that had thirty members on a good day, yet Commodore came up from West Chester with a 4000 to show this little tin-pot club the

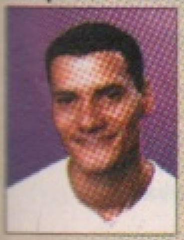


machine before it was even generally released, and that's the way they treat it over there. But over here...
***Jolyon:*** You do get that sort of effort from Commodore [UK], but it's not a Commodore policy, it's individual people taking their own initiative. For example I've known Commodore staff who have brought machines along to small ICPUG groups because they wanted to, not because it was an official policy.
***John:*** Is that a new thing?
***Jolyon:*** No, that's been happening for quite a while. Commodore have popped down to a certain South East group of ICPUG to show them new product. They brought along new machines, they brought CDTV, apparently they're bringing CD32 with a full motion video module up in two weeks time to show that to a group of no more than twenty or thirty people. But it's not an official policy it's just...
***Mat:*** The inspiration of a few non-senior members of Commodore?
***Jolyon:*** That's it! Someone there who's got the authority to do it happens to live nearby and is willing to take the evening out.
***Mat:*** It seems ridiculous that a small group who have some influence, but nowhere near as much as CU Amiga, Shopper or Format should be getting exclusive previews. We've even got a situation where we find out our news from the Jackie Brambles column. I mean who the hell is Jackie Brambles?
*< A number of rude remarks followed! >*

**Hopefully we'll start to see games like Ultima Underworld and Wolfenstein [appearing on the CD32]. Plus 3D flight sims and the like.**

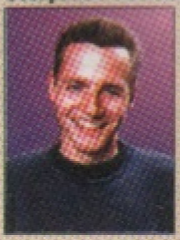
***Mat:*** So it does seem as if Commodore are a bit paranoid about giving out their information doesn't it?
***Jolyon:*** Well Commodore were very worried with CD32, initially that the information would leak because they didn't know what the other competitors in the market, particularly Sega, and especially Nintendo, were up to on the CD front. Nintendo have kept themselves to themselves quite a lot. All it takes is a well-timed press announcement to spoil a lot of effort on the part of another company. Now, interestingly, that has just happened. Nintendo had a press release last week about the joint venture they've got with Silicon Graphics.
***Mat:*** Is this their new 64-bit console?
***Jolyon:*** New 64-bit *machine*. But the way that's worded is a direct spoiler by the looks of it, at 3DO. Now they haven't even mentioned CD on it, but I assume it will be a CD machine. I don't think any machine's gonna come out from now on that isn't... until the next technology advances come out to replace CD.
***John:*** At the moment, and for the next year, is there any competition for the CD32, technically I mean?
***Tony:*** The 3DO is competition.
***Jolyon:*** It is competition but it's double the price.
***Mat:*** Yeah, $700 is their target price so God knows what it's actually going to cost, so is that really any competition? I mean, the sort of people who can afford $700 are already there with FM Towns and the other CD technology that's been available for a while.
***Wavey Davey:*** Doesn't it depend what 32's going to be marketed as?
***Seb:*** Definitely.
***Wavey Davey:*** I mean is it going to be marketed as a games machine?
***John:*** Looks like it.
***Jolyon:*** It is, it's a pure games machine.
***Stewart:*** It's got no keyboard has it?
***Andy:*** Commodore are trying very hard to suppress the fact that it can be upgraded.
***Wavey Davey:*** This is what I mean. The opportunity's there to upgrade the thing.
***Mat:*** They're actually trying try to suppress it?
***Andy:*** Well not suppress it, but basi-

## MAT BROOMFIELD
**Occupation: Technical Editor, CU Amiga**



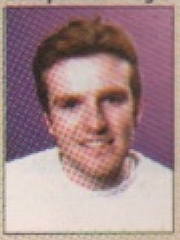
**Background: Joined CU Amiga as Technical Editor in 1990, before moving into freelance writing. Rejoined CU staff as Technical Editor once again in August 93. Is this man mad?!**

## TONY HORGAN
**Occupation: Assistant Technical Editor, CU Amiga**



**Background: Worked on Amiga User International from 1987 to 1991, turned freelance for a year, then joined CU Amiga in September of 92.**

## SEB LEE-DELISLE
**Occupation: Programmer**



**Background: Currently developing CD32 software with Almathera. Used to play guitar (badly, by all accounts) with Deep Sea Dreamers.**

## JOLYON RALPH
**Occupation: Developer**



**Background: Spearheading Almathera's CD-ROM developements, including CD PD collections, and the forcoming Video Creator for the CD32.**

»

» cally they don't want that part of it pounced upon yet. They want to keep it quiet and let it take off as a games console first. Similar in a lot of ways to what they did with CDTV originally, but then they said it wasn't an Amiga, that it was a completely new concept, this time they're trying to say 'OK here's an Amiga but it's not a full Amiga just yet, that will come later on'.

**Stewart:** That could be why they delayed the launch of the CD add-on for the 1200 as well.

**Jolyon:** I don't think that was a delayed launch. I just don't think they've got it ready yet. They've abandoned, from what I hear, their attempts to get it working with the PCMCIA port so there won't be a CD ROM drive for the 600.

**Mat:** It's interesting that Commodore have abandoned their attempts yet only last week we saw a company who were able to get all manner of hard drives working through there. What is the significant difference between the two?

**Jolyon:** I think it's to do with performance on the 1200 plus the fact that the CD ROM add-on will now need new hardware to do chunky to planar conversion, which is the special chip that's in the CD32.

**John:** Is that chip a good thing?

**Jolyon:** Oh it's an extremely good thing. Definitely.

**John:** Will everyone use it?

**Jolyon:** A lot of people will use it. If it's a CD32 only title I don't see why not.

**John:** Is that to enable PC ports?

**Stewart:** If you code on the PC it's easier, isn't it?

**Jolyon:** Yes. You don't have to recode your graphics algorithms.

**John:** It was a move by Commodore to make PC conversions easier.

**Jolyon:** It's more to encourage companies who have left the Amiga to return to the fold. Hopefully we'll start to see things like *Ultima Underworld* and *Wolfenstein 3D* – those in particular are the sort of games that benefit. 3D flight sims, that sort of thing, although there are companies who invested a lot of money in Amiga routines to do 3D who may not want to rewrite all their code overnight for the new chip.

**Mat:** So what exactly does the new chip do?



**Is anybody actually writing anything for the CD32 that's any good? No offence intended, but the stuff that came out for the CDTV was a load of crap.**

**Stewart:** It's a kludge.

**Jolyon:** It is, it's a kludge. Basically the way that the Amiga and the PC store their graphics memory is totally different. On the Amiga it's stored as a series of bit-planes. The advantage of that is if you're doing games with parallax scrolling it's very simple to have backgrounds and foregrounds scrolling.

**Mat:** Because they're each a separate bitplane.

**Jolyon:** Which is why you very rarely see those kind of games on the PC because it's very difficult to do on a PC system. The advantage on the PC where each pixel is represented by one byte in video RAM, is that it's a lot faster for doing 3D graphics – things like 3D fills. Also a lot of other standard graphic effects are faster. Simple things like drawing lines.

**Stewart:** To set one pixel, you write one byte on a PC but on the Amiga you had to write eight.

**John:** Why wasn't this in the Amiga 1200 and the 4000?

**Jolyon:** They didn't have it then. Simple as that.

**Mat:** Why do you say it's a kludge?

**Stewart:** The DMA should be doing it. But you actually have to write eight long words to a register. So you've still got to go through the process of using the Amigas's video.

**Jolyon:** It doesn't give you a VGA screen mode it just gives you a fast convertor. At the moment people have been writing their own software conversion routines, and traditionally these have been very time intensive pieces of code that need a lot of calculation. This hardware just speeds up that calculation. The advantage as well is that though the operating system calls to do this, the hardware is emulated in software if you've got a machine that doesn't have this particular chip. So the same software should run (if it goes through the operating system) on a normal Amiga, although it'll be slower.

**Commodore have gone to great lengths to distance CD32 from CDTV – it's a games machine and that's what they're going to market it as**

**John:** How slow.

**Jolyon:** Um, well...

**Stewart:** Which kickstart is this on?

**Jolyon:** This should be on 3.0. It uses a particular function. In fact it may even be in 2.0, certainly it's in 3.0. It's been there for a while. It's not really documented. Well it was documented, but no-one knew what the point was; now we all understand what the point is.

**John:** So they knew they wanted to make one of these, it just wasn't ready?

**Jolyon:** Oh yeah. The whole idea was that this was something that the software guys at Commodore convinced the hardware guys was needed so that they could do the sort of games companies are writing for the PC. This was something that was essential if the Amiga was to keep a number of good games coming out.

**Wavey Davey:** It's all very well talking about these wonderful hardware advances, but is anybody actually writing anything for CD32 that's any good? No offence intended but the stuff that came out for CDTV was crap.

< *Laughter* >

**Wavey Davey:** Almost without exception, especially the games stuff.

**Jools:** We did *Megalomania* on the CDTV.

**Wavey Davey:** I mean games written FOR CDTV as opposed to just shovelling stuff over.

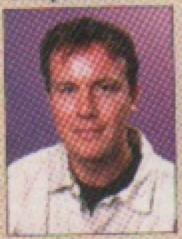
**Jolyon:** Most of the best games for CDTV were never released.

**Stoo:** Why's that?

**Jolyon:** Because Commodore did a total foul up on distribution. Originally, Commodore came to all the developers and said 'We've got this wonderful idea, wonderful new machine and we're launching and we're gonna make it easy for all you developers and publishers out there. You can produce your titles on a relatively low budget, certainly compared to doing it for something like CD-i, and we will handle all of the marketing and distribution of your products so it's very simple for you to do.' So developers produced titles and Commodore said 'Right we'll take 2000 of that' and then they distributed it round the world. Then Commodore got rid of the guy who was doing this and Commodore totally stopped this way of handling it, so all of these companies who were developing titles expecting Commodore to handle distribution found that distribution had vanished, leaving them to find their

## ERIC MATHEWS

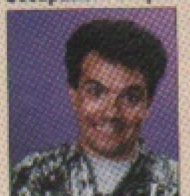
**Occupation: Game designer**



**Background:** One of the three founder-memebers of the Bitmap Brothers, Eric's previous projects include the classic Xenon and Speedball games, and more recently The Chaos Engine.

## STOO

**Occupation: Graphic artist**



**Background:** The man behind the gory graphics and twiching corpses of Sensible Software's forthcoming Cannon Fodder. An obviously sick mind lurks within.

## JOOLS

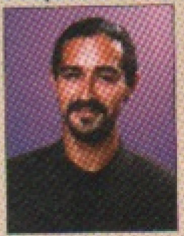
**Occupation: Programmer-designer**



**Background:** Suffered some terrible childhood trauma (probably). How else could he concoct something as gut-churningly bloody as Cannon Fodder? Been in the industry for longer than he'd care to imagine.

## BEN VOST

**Occupation: Micropace PR/Technical Support**



**Background:** Openly admits doing similar jobs at similar companies in the past - not so openly admits doing the subtitles for the "cult" Asian soap opera Mahabarat.

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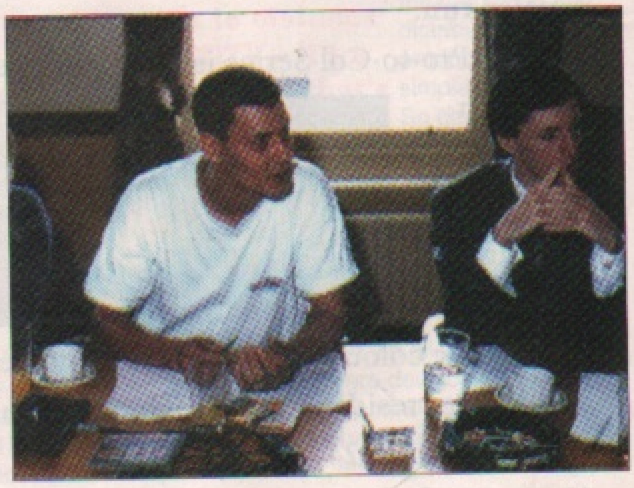

own distribution systems. CBM had managed to totally foul up things like getting disks into high street stores and the sales of CDTV were slow to begin with.
***David:*** To begin with?
***Jolyon:*** Well I'm talking about to begin with, I mean eventually it didn't pick up, but it could have done.
***Jolyon:*** Anyway, sales were slow and publishers had to do their own distribution and many of them didn't bother.
***Jools:*** I think the main point was that nobody would come up with the cash for development.
***John:*** Why, how much does it cost to do a CD title?
***Jools:*** Well you've got to pay the programmer, pay the artists and they want to make some profit.
***Jolyon:*** Depends what you want to do with a title. If you just want to take your floppy disks and put it on CD then it's not that expensive, but those are the things that get slated in the reviews because it's just the same as a floppy disk.
***Wavey Davey:*** How can CBM convince developers that the CD32's gonna be any more successful than CDTV?
***David:*** By selling some!
***Wavey Davey:*** If I was thinking about developing for CD32 I'd look at CDTV and say 'No thanks, what's the point?'.
***John:*** Wouldn't you look at the Nintendo market to see how successful you could be?
***Wavey Davey:*** Yeah I'd look at the Nintendo and Sega markets and say 'Yeah I'll go for that mate!'.
***Stoo:*** It's extremely difficult to get into those markets unless you know what you're doing
***Jolyon:*** Commodore have gone to great lengths to distance CD32 from CDTV2. It's not like CDTV, it's not a video shaped box, it's a games machine and they're selling it at a far more realistic price than when CDTV first came out.

**There have been plenty of games on the Amiga that could have been as big as Sonic or even Mario if they'd had the marketing behind them.**

***Stoo:*** You think so? £299 – the same price as the A1200?
***Jolyon:*** I think it's a very realistic price for what it is. Judging by Commodore's pricing policy it's gonna be £199 by this time next year at the most.
***Wavey Davey:*** Yeah but why should a kid want to buy that instead of a Sega Megadrive with a CD?
***David:*** Especially when half his friends have got them.
***Jolyon:*** Well it costs less than a Megadrive with a CD add-on.
***Wavey Davey:*** But all the games are already there.
***Jolyon:*** Have you seen the MegaCD games?
***Andy:*** MegaCD games aren't all that brilliant.
***Wavey Davey:*** Agreed but at least there are some!
***Jolyon:*** At the end of the day it'll be in the shop with the MegaCD and CD32 next to each other and there's software running on both and the kids will look at it and say 'That's rubbish, that's good.'.
***Stoo:*** Do you really think so?
***Jolyon:*** That's what it's going to be down to.
*< Murmurs of disagreement >*
***David:*** The kids will look at it and say 'Sonic 4, I want that.'
***Andy:*** You're missing the whole point of Sonic. Sonic and, for what it's worth, Mario, are so much in demand that people will buy whatever has got those two on it. Merchandising works on that basis. You can sell popcorn because it's got Sonic written on it. CD32 needs a title like that.
***David:*** Anyone got any idea what software pricing is going to be on CD32?
***Jolyon:*** It's going to be more than floppy disk software to start with.
***Jools:*** Is it going to be cheaper than projected cartridge prices?
***Wavey Davey:*** Oh yeah.
***Andy:*** It's not going be £59 to start with.
***Mat:*** Although he admitted he had no right to insist, didn't David [Pleasance] say that he was hoping to keep it between £29 and £49?
***Jolyon:*** Well I was originally told £19 to £29 by Dave Pleasance. He'd very much like them to be that price because his market's selling hardware not software.
***Mat:*** But then Commodore themselves have forced the minimum price up by charging an amount on each CD that's sold.

**For the first time you have a machine that can do everything and that is very, very important to most people.**

***Jolyon:*** At the end of the day the company's got to recover its costs and make a profit.
***Mat:*** But I'm told that this $3 charge works through as a £10 price increase by the time the CD reaches the shops.
***Jolyon:*** Yeah, a $3 price increase will be about ten pounds when it hit sthe shops.
***John:*** Will there be a 'killer' game?Is there a Mario or a Sonic on the way?



## DAVE WINDER
**Occupation: CIX moderator**



**Background: Moderating more conferences on CIX than just about anyone else, Wavey Davey is a bit of a rocker at heart.**

## ANDY LEANING
**Occupation: Silica Systems PR Manager**



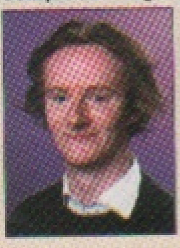
**Background: Been with Silica for the last seven years. Knows the Amiga market inside out, back to front and upside down... you get the idea!**

## DAVID WARD
**Occupation: Freelance journalist**

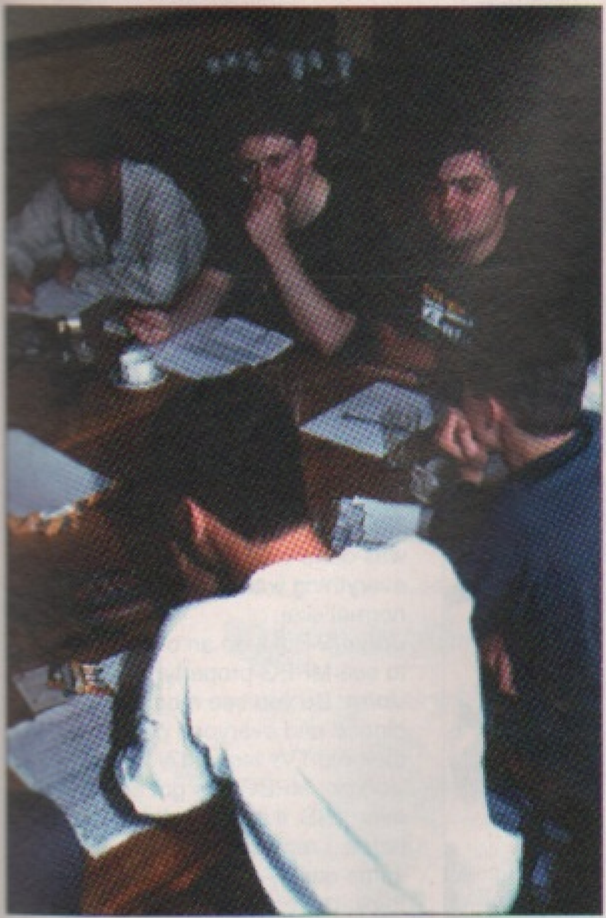


**Background: A regular on the Amiga enthusiast scene for some time, David has written for CU Amiga and JAM in his time.**

## STEWART SOCKETT
**Occupation: Programmer**



**Background: One of the main men behind Psygnosis' stunning Microcosm, the fruits of which will soon be seen on the CD32. It looks stunning.**



**Jools:** I'd really like to see a good playable game, really addictive, but tied in with an excellent album for thirty quid. That way everyone gets their cut. The music industry gets back into it.
**Jolyon:** There are plenty of games that have been on the Amiga that could have been as big as Sonic or as big as Mario if they'd had the marketing behind them. *Lemmings* comes to mind immediately. They put a lot into that, but if they'd really pushed...
**Mat:** Didn't that become an icon in its own right? It transferred onto every format going.
**Stewart:** Yeah it did, but it wasn't Amiga specific.
**Stoo:** If there was a game that was just Amiga, who knows? You need an image that you can identify with the console or the machine.
**Tony:** So why aren't CBM commissioning someone to do 'Sonic'? You don't need 7 million to write Sonic. They're going to put the machine out and it's going to have *Diggers*, *Oscar* and maybe a demo disk, possibly something with some of Bullfrog's 3D stuff if you're lucky, but it's basically gonna have nothing there but they're gonna put it in the shops and hope it's going to sell. If they just put some time into developing something that really shows it off then it *would* sell.
**Jools:** That was what happened with Sonic. They started with a red box in their offices and everybody had to put in their ideas.
**Jolyon:** For Nintendo and Sega, both Mario and Sonic were developed effectively in-house so they were in-house funded. That's the reason those products were not developed for other systems, because they're tied in directly with the manufacturer. It would be very difficult for Commodore to convince a company who has a sure-fire winner to only do it on their system.
**Tony:** So they're going to have to initiate one of their own.
**Andy:** Sega makes a lot of their money from software. Although they sell the hardware, they do it so that they can take most of their margin from software. Commodore don't work on that basis.

**If you look at youth culture now, computer games have taken over from the record market almost completely. Kids want computers, not music.**

**Jolyon:** But they're going to. Once the sales of CD32 take off they intend to make a lot of their revenue from the $3 licencing on the titles rather than from the hardware sales. A bit like Nintendo do with cartridges really. Then the price of the hardware will come down.
**Andy:** Yes, but that doesn't instigate in-house software development, that's making money from a market you've got.
**Jolyon:** But that's their only interest. Commodore keep stating that they're a hardware company not a software company. They're not interested in developing software.
**Stoo:** The thing is if they don't develop software the machine's going to fail.
*< General agreement around the table >*
**Stoo:** They've got this new machine and it may have brilliant hardware but if nobody's going to touch it... There's no point just showing people a flashy demo – where are the games?
**Andy:** We're all saying 'How's the CD32 stack up against Sega and Nintendo' but there's no way Commodore need to sell the same sort of quantities as Sega or Nintendo. The point is, what do Commodore NEED to sell, and what figure are they happy with? I mean, the 1200 for most people is a success. It's nothing in terms of the Sega market but Commodore are quite happy with it, or at least that's the public perception that they give. They don't need to sell as much as Sega and Nintendo.
**John:** Since the CD32 is theoretically technically much superior to both Nintendo and Sega, will that not encourage developers to produce the next generation of things that are exceptionally good?
**Andy:** It would have done in the past, but I'm not sure it will nowadays because at the end of the day like everybody, they're in it for the money and unless CBM can convince them that the machine's worth developing for...

**Both Mario and Sonic were developed in-house. It would be very difficult for Commodore to convince an outside company to develop a character exclusively for the CD32.**

**Jolyon:** The problem with software development is that it's getting more and more expensive.
**Andy:** It's more commercial.
**Jolyon:** The more expensive it gets, the more the smaller systems are squeezed out of it. It's exactly the same as happened in the early 80's when first of all you had the proliferation of machines; and then things like the Dragon and the Oric were just pushed out simply because it was too expensive to develop games for them and port them. The same thing's happening now. Smaller machines are in trouble, and the Amiga's inevitably going to be a smaller machine than PCs or the consoles, and it will be the first to suffer.
**John:** Won't the new planar chip mean that the CD32's going to be a cheaper alternative to a multimedia PC?
**Jolyon:** Yes. Definitely. And the thing about a PC with CD ROM is that you need a very fast PC to get any sensible results out of it. If you've seen things like *7th Guest* running on CD on a PC, the actual graphics performance on it is abysmal. The same thing could be done faster and better on a CD32



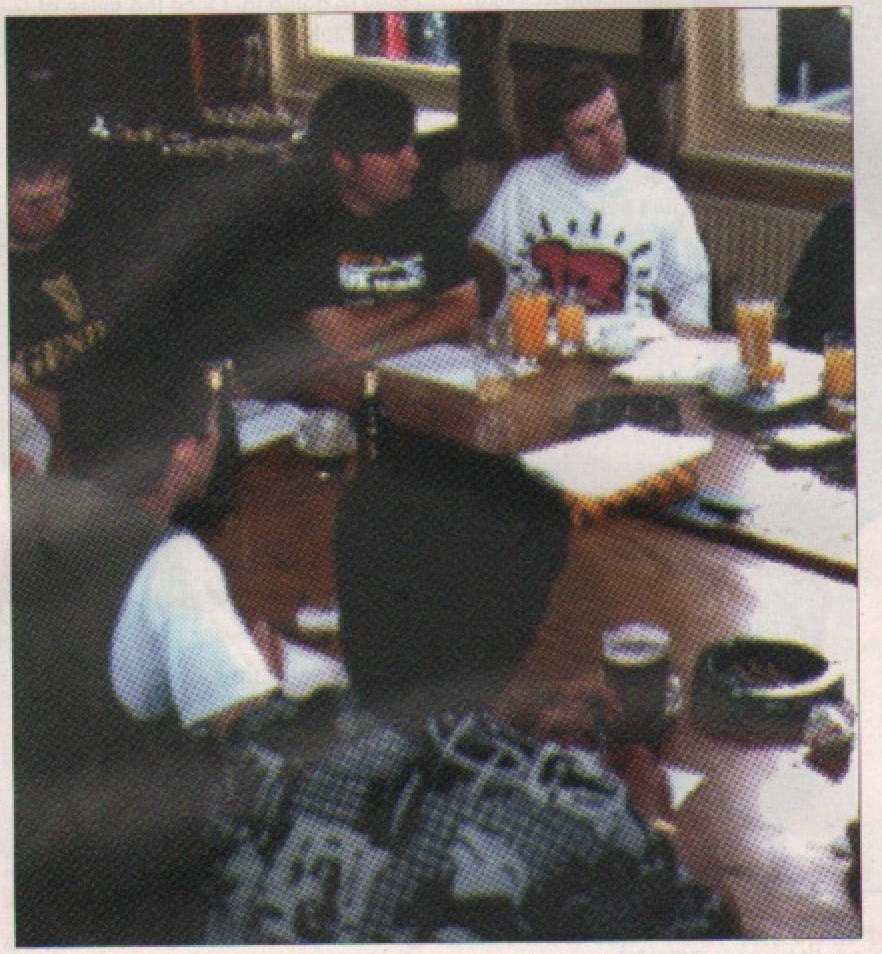
## JOHN KENNEDY

**Occupation: Freelance journalist**



**Background: A specialist technical Amiga writer for many years, John has sold his soul to various publications in the past, before realising the joys of writing for CU AMIGA.**

» with ease.
**Stoo:** Then Virgin *must* do it.
**Jolyon:** They're porting it at the moment to CD-i and the CD-i version runs a lot faster than the PC version even though it's only a 68000 in a CD-i.
**Stewart:** CD-i's using full motion video isn't it? The new demos you see now have MPEG on board.
**Jolyon:** Yes, the new machine that's coming out has MPEG on board, but I think that *7th Guest* is not actually using full motion video.
**Stewart:** Really?
**John:** The CD32's theoretically got FMV.
**Stewart:** But you pay about two hundred quid more.
**Jolyon:** Well it's £200 now; it could be £20 next year.
**Wavey Davey:** It should be bundled in the price shouldn't it.
**Jolyon:** It will be. I think that by Christmas next year it'll be £199 with full motion video if it's still around.
**Wavey Davey:** That's the problem, and it was the same with CDTV. It's a case of 'This is a wonderful machine. Next year it'll be even better because you can get this next year, and the year after you can get this.'
Stoo: Who said CDTV was a wonderful machine?
**Wavey Davey:** Commodore did!
**John:** FMV is a standard that's independant of the CD32 because it uses the MPEG method – will it run on anything?
**Jolyon:** As long as they're white book disks.
**Mat:** White book disks?
**Seb:** They're the industry standard for full motion video. Defined by Paramount, Phillips, Commodore and a load of others. It just means that disks are machine independant.
**John:** The people who make video cassettes are going to love it because it's a heck of a lot cheaper to press a CD.
**John:** CD32 could replace the video recorder when you go and rent a film, and it'll also be the cheapest machine to do it.
**Wavey Davey:** But you have to change the CDs halfway through the film though.
**John:** But you change music cassettes to hear the other side, don't you?
**Jolyon:** I don't think the CD movie is going to be an outstanding success because the technology's not right for it yet.
**Andy:** You're missing a fundamental point that for the first time you have a machine which can do everything and that is very, very important to most people. If you can say 'I have all my films, all my music cassettes, all my computer games on a single format CD which you can easily stack,' then that's a tremendous



**If you've seen things like *7th Guest* running on CD on a PC, the actual graphics performance is abysmal. The same game could be done faster and better on the CD32.**

sales message At home on your bookshelf you've got videos, you've got CDs, you've got cartridges and disks – terrible, there's no cohesion there at all. If all the shops could now sell everything off a single CD rack...
**Jools:** Surely VHS is already to established in the market?
**Andy:** Yes, but VHS doesn't address the sound market and it doesn't address the computer game market. We've now got a single compact disc and it's in a standard sized box and it'll do everything.
**Jools:** I don't think it'll ever replace VHS.
**Mat:** Why not? We thought vinyl and Betamax would be around for a long while, but they eventually got replaced by CD and VHS.
**John:** Can you see the CD32 being one of the first machines to be widely used like this?
**Jolyon:** Could be.
**Wavey Davey:** If you look at the youth culture now, computer games have taken over from the record market almost completely. Kids want computer games, they don't want music. So it makes sense to get music onto that format.
**Jolyon:** This is where the potential for financing the actual projects will come from. From the music industry trying to get back into their market again.

**I don't think the CD movie is going to be an outstanding success because the technology is not right for it yet.**

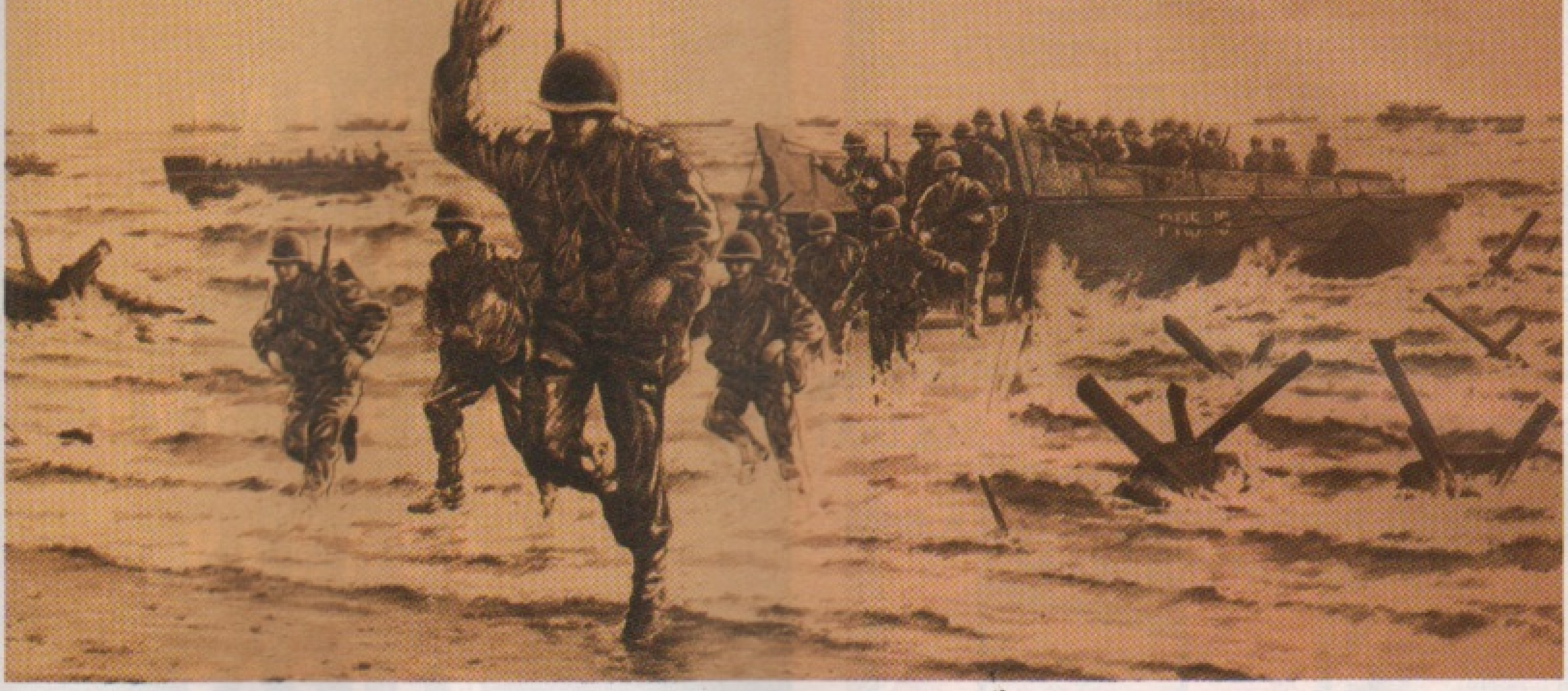
**Tony:** The only thing like that so far is the Global Chaos CD which was less than stunning.
**John:** Do you think that when you buy a CD in a few years time, that you'll expect there to be a video to go with it?
**Jolyon:** Yes. The great thing about video CD and even CD32 is that you can make a disk which is both a CD32 disk and a video CD disk, yet when you put it into a household audio player it completely ignores those tracks and just plays as if it was a normal audio disk without there being a track with noise on it or anything like that.
**Mat:** What is the video capacity of a standard disk?
**Jolyon:** A standard disk would be 72 minutes although with various production companies you could get that up to 80 minutes.
**Mat:** Of video?
**Jolyon:** Of video on a CD. The same as audio, exactly the same as audio.
**John:** What quality is that?
**Jolyon:** Well this is MPEG 1 quality which is not bad.
**Stewart:** It's a bit blocky.
**Jolyon:** It depends on...
**Stewart:** The size of the squares!
**Jolyon:** It also depends on the circuitry they put in to smooth out the video once it's gone through the convertor.
**John:** Is that in the player?
**Jolyon:** That'll be in the actual player hardware.
**Wavey Davey:** I've seen two demos: a James Bond film on CD-i which was superb: VHS quality as they say, and a Nimbus, they're add-on boxes for CD players, and that was terribly blocky. The actors were talking but their mouths weren't in sync.
**Jolyon:** It depends on several things: it depends on the quality of the conversion to start with; the original encoding. If that was done badly then you get a bad output. It also depends on the actual unit it's being displayed on. MPEG looks a lot more blocky on a monitor than it does if its put through a TV simply because a TV blurs everything anyway.
**Wavey Davey:** This Nimbus one was done on a projection screen so everything was blown up to ten times normal size.
**Jolyon:** Put it on an old 14 inch telly to see MPEG properly!
**John:** Do you see monitors being binned and everyone going back to their old TVs instead?
**Jolyon:** MPEG has got advantages over VHS, it's also got disadvantages. I reckon they're about the same quality–wise subjectively. I think it's very good for what it is. MPEG1 is being rejected by all the cable and satellite TV companies as not being high enough quality for broadcast. They're going on to MPEG 2 for satellite and cable transmissions, but I don't think that's been finalised yet. I don't think anyone at the low end of the market is going to complain about MPEG 1 for CD. The only way to improve on MPEG 1 is to use a better form of MPEG and that would have to rely on the double speed disk so you'd only get 36 minutes on a CD which may be alright for some things but...
**Mat:** Double speed disk?
**Jolyon:** CD32 has a double speed CD drive. MPEG will play back from the drive running at normal/single speed; that's what it was designed for.
**Jools:** Surely when you're talking about one standard which hopes to be the standard for the future, TV's got to change. Double the scan lines or whatever?
**Jolyon:** As soon as that happens there'll be much more data on a screen and it'll be impossible to play back on a standard CD and unlikely that even the quad density CDs they're talking about now would be enough. The problem is, different areas of technology advance faster than others and things which are brand new ideas then become obsolete because of it.

## NEXT MONTH

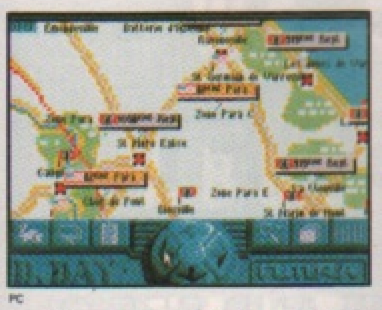
**And that's were we'll have to leave the proceedings. Next month things begin to hot up as our team of experts turn their attention to games software, piracy, the shape of Amiga software to come, HD-installable programs, and many other unmentionable (and highly contentious) issues. Be there!**

# D-DAY

## DARE YOU RE-LIVE IT?



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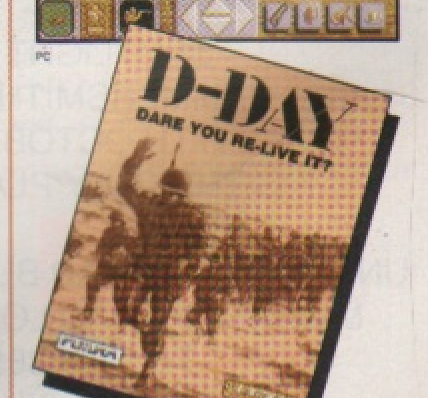
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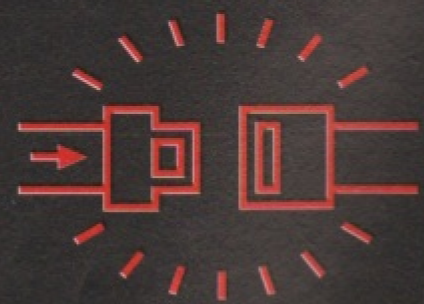
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# A different Perspective

**In the future we could all be watching films featuring actors and scenes which have never existed outside a back of computer memory. Already it's possible for an Amiga to create images so realistic that it is impossible to tell them apart from real photographs. John Kennedy looks at the current state of the digital art, how it all works, how it can work for you and what is yet to come.**

There is something incredibly addictive about 3D modelling – something which stems back to childhood and playing with Plasticine and Lego. The ability to create out of thin air an object exactly as you want it, and then place it in an entirely imaginary world is one which has mesmerised artists of all ages since time began. Before the advent of computers, budding artists needed to be naturally talented at drawing and had to spend years learning method and technique in order to be able to create a good likeness.

It still takes talent to create a really good 3D image on your computer screen, but the task of rendering the image realistically has been completely taken over by the computer. Now we have the freedom to experiment with colour, form, lighting and composition without having to worry about painting an incredibly complicated object and background each time an alteration is made.

Some would say it's a lazy way to becoming an artist, some would say it's not art at all. Only you can decide as you look at the pictures used to illustrate this feature. Are the images, which do not or could not exist in the real world, merely digital abstractions? Or would you not agree that the computer has become a tool, albeit one several orders of magnitude more complex than a paintbrush, to explore the imaginations and display thoughts in a form we all can share?

## JARGON BUSTERS

- BUMPMAP: A flat image, perhaps produced with a paint program like *Deluxe Paint*, which controls the 'bumpiness' of a rendering object. Useful for adding realistic textures to objects.
- CSG: Constructive Solid Geometry which uses primitives such as sphere and cubes to model objects.
- DITHER: The technique of giving the impression of many different colours by using many different patterns of a lesser number of colours.
- FACET: A triangular shape used to model an object. A complicated object could consist of thousands of facets, each with slightly different colours or textures.
- RENDERING: The process of generating an image from a model of an object.
- 24BIT: True-colour of more than 16 million shades requires that 24bits of memory storage is used for each pixel.
- PHOTOREALISTIC: If an image looks so real that you're not sure if it's a photograph or not, then it's photorealistic.
- FORTH: A quirky stack-based language, that's fast, relatively easy to implement and was almost brought to public awareness via the Jupiter Ace micro.



## MODELLING

There are many rendering programs available for the Amiga, but they all work in the same way: first, objects are created, then lights are added, camera angles adjusted and finally the scene is rendered to form a visible image. However, even though the method might be the same, the differences between various packages are great.

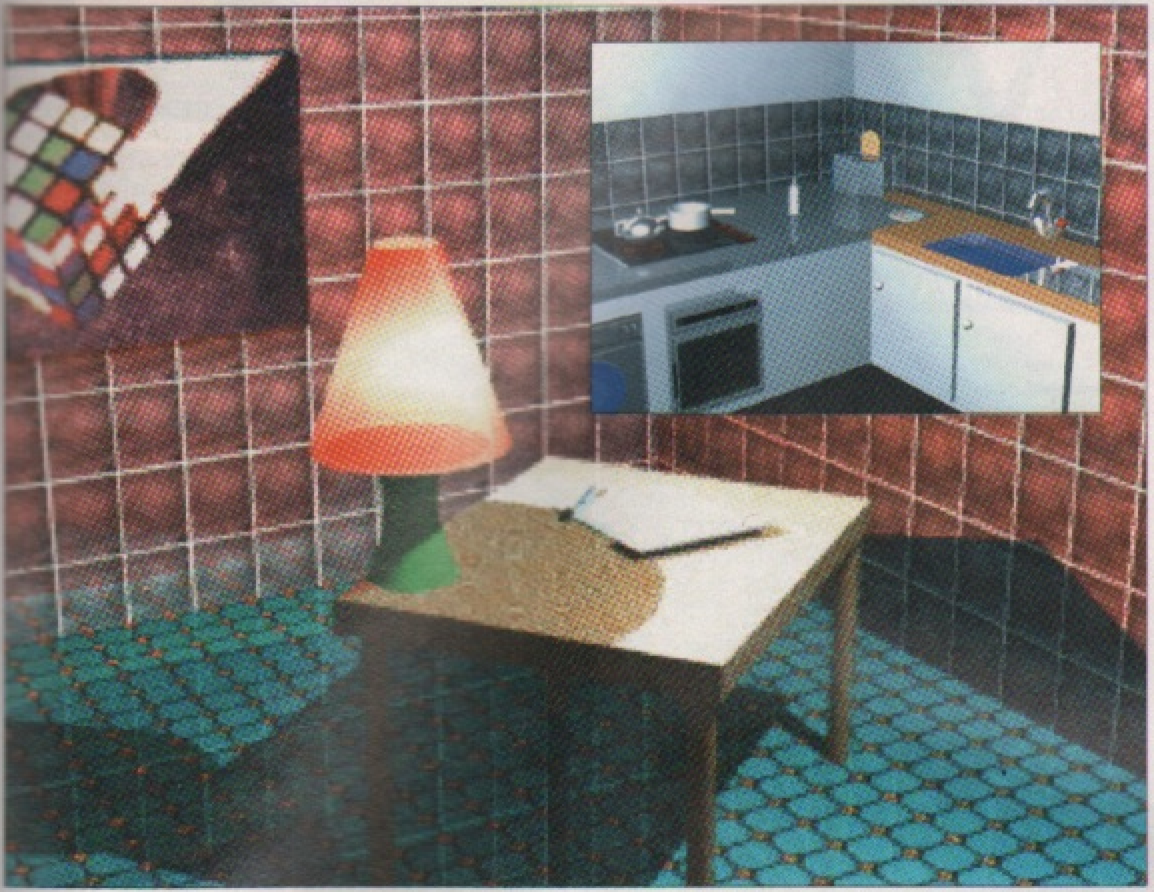
Just as some artists prefer to work in oils and others in stone, each individual will have his or her favourite program. Those lucky enough can even use several programs, using the modelling strengths in one program, and the advanced animation facilities in another.

Modelling, or creating the objects used in the images, is an art form in itself. The ability to look at an object, and take it to pieces in the mind's eye to form simpler constituent parts is a skill that only increases with practice.

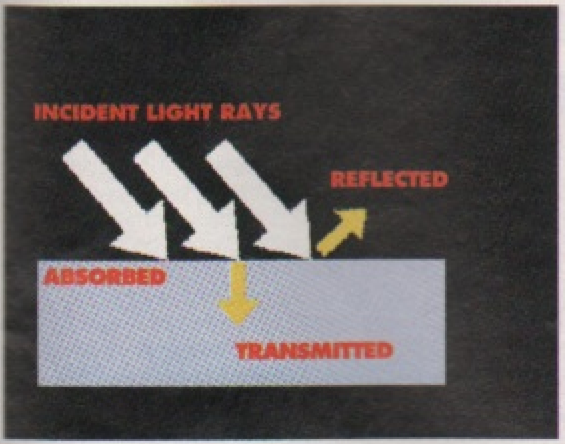
Many programs, *Imagine* for example, use a facet-based system whereby each object is composed of nothing other than triangles, all of different sizes and meeting at different angles. The more facets used to describe an object, the greater the detail. Unfortunately more triangles also mean more time and more memory required to render the finished image.

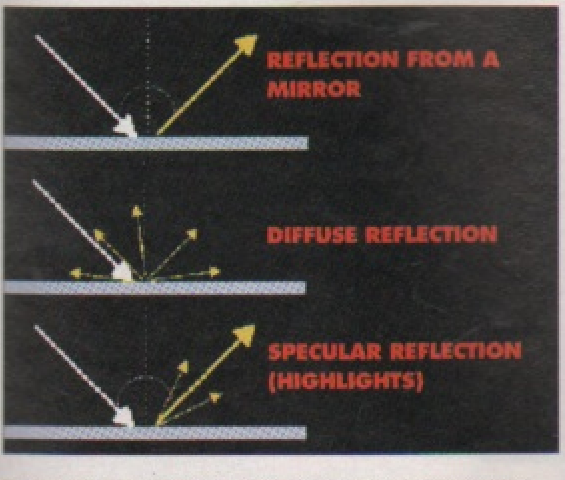
Another problem with the facet-based approach is that facets always meet at straight edges, which poses the question how can an object such as a sphere be created? The simple answer is that all rendering software use smoothing techniques to 'round off' the corners and so create natural looking spheres. The smoothing feature must be optional for each object, otherwise objects such as cubes would also start to become spherical.

Other modelling programs, *Real 3D* is one, use an approach based on primitives (the most simple mathematical shapes possible). Using the primitive approach, a table would be constructed from a cube (stretched out and flattened), resting on four cylinders. A ball would be a proper sphere as there is no need to ask the software to round off edges. This method is very easy to use and is ideal for



Inset: This picture used a backdrop created with *Real 3D v1.4*, with the foreground objects rendered in *Real 3D v2*. The cans are simple cylinders with the label wrapped around them, the tiles made from blue cubes. Notice the motion blur of the falling can, and the depth of field effect which makes the cans sharp but the foreground and background out of focus.




Top: When a ray of light is incident on an object, it has three choices: it can either be reflected, transmitted or absorbed. Mat objects will absorb most light, shiny objects will reflect light and transparent objects will transmit light. In reality, most objects will exhibit all three properties.
Bottom: The way an object reflects light plays an important role in its appearance. A mirror will reflect the light completely, whereas a more rough object will scatter light evenly. An object which is shiny will reflect a specular highlight, the size of which gives the impression of 'hardness' or 'smoothness'.

creating both simple and complicated objects very quickly. Unfortunately, creating complicated objects with hollows and cross-sections is difficult using primitives and can only be surpassed by allowing 'boolean operations' to be performed. Thus to make an empty box with an open lid, you need two cubes; one fractionally smaller than the other. The smaller box is placed inside the larger, and then it is magically subtracted from the larger one with a logic statement. *Real3D* suffers from this slight complication, although version 2 makes the process simpler than I've described it.

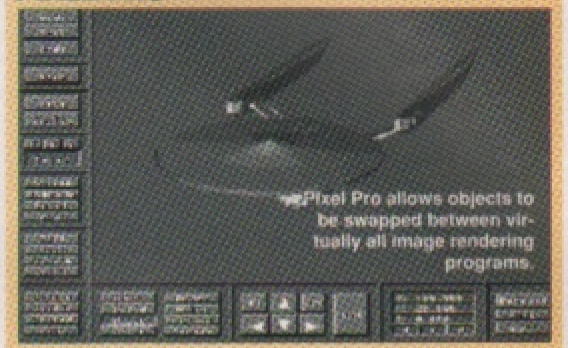
## REALISM

Realism is the name of the game and a picture filled with mat grey objects isn't going to win any prizes outside Conservative Party headquarters. Real objects have physical properties which alter the way they appear. An object which is shiny reflects more light than one which is rough. A sphere coloured red reflects only the red light incident upon it. Some objects, such as a sheet of glass or a tank of water, let light pass through them. Mirrored objects reflect all the light that falls on them, and clouds of gas... well, it can all get rather complicated. Each of these attributes (reflectivity, transparency, colour and so on) must be specified for each material used in the scene.

For example, you may make a material called 'glass' which is sort of bluey-green in colour, slightly reflective with a medium refractive index but most of all, highly transparent. Once defined, this material can be applied to any of the objects in your scene which are then 'made of glass'. Look closely at the objects around you, paying particular attention to how the light appears on the surface. Is there a sharp image reflected off a nearby window or strip-light? Is there a reflection on the object of the items around it? If it is transparent, how is the light which shines through it affected?

Even a brief acquaintance with the laws of physics behind the optics will enable you to make more realistic objects, so search out that old school physics book. You must remember that complicated materials need time to render. Most programs offer image rendering to different degrees of accuracy and you will probably need to select the most detailed (and therefore slowest) to see the effects of glass or reflective materials. »

## PIXEL PRO



Pixel Pro allows objects to be swapped between virtually all image rendering programs.

A very useful program if you deal with multiple object formats is *Pixel Pro* from Axiom software. *Pixel Pro* can load, save and edit objects created by just about every 3D modelling program ever written. All except, that is, *Real 3D*. For some reason the Yanks don't like *Real 3D* and tend to leave it out of conversations. It's probably just jealously that a program from Europe can produce better results than an American one. Luckily, RealSoft provide a Sculpt->Real object conversions utility, so all is not lost. As well as acting as a universal translator, *Pixel Pro* can create 3D images from 2D bitmaps, extrude objects and optimise them for saving. Some data which you might like to feed *Pixel Pro* comes from a company called ViewPoint. These guys spend all day converting real objects into digital format for rendering programs, and they have produce data that has been used in many television programmes and movies including the Robin Williams' film Toys.

ViewPoint's 3D clip-art is of exceptional quality and well worth investigating. Whenever images are created, the *Art Department Professional* should be nearby. In this situation, the JPEG savers and loaders are very useful to save disk space, and of course the special image processing effects and morphing animation support could come in useful too. Alternatively, programs such as *ImageMaster* and *Image FX* do similar jobs and should be staples of the image renderer's toolkit.

## HEAVY METAL

You could bicycle from Land's End to John O'Groats if you really wanted to. People have done it, and lived to tell the tale. Likewise, you could render photorealistic dinosaurs for your own version of Jurassic Park II on a bog-standard Amiga 600. But would you want to? More to the point, would you live long enough? Without wishing to discourage anyone, to create images like those in these pages you need something better than an unexpanded A600. Some of the pictures here took more than 12 hours on an Amiga fitted with a 68040 processor to create – that means on a 68030 they would have taken more than 36 hours, on a 68020 more than 96 hours and on a 68000 (an A600) over a week. Of course, these images are complicated – and very high resolution – and there is no reason to think that's where you have to start. A very satisfactory lo-res 256 colour image can be produced with *Real 3Dv1.4* very quickly indeed on an A1200. The really horrible thing is that you never have an Amiga that's fast enough, no matter how much you spend on it. You find that as soon as your computer is faster you start creating images with more detail, and you're back to where you started. Floating point co-processors (or FPUs), such as the 68881 or 68882, can make a large difference to rendering times, so make sure you get one should you be expanding your system. For heavy work, an FPU should be considered an essential requirement.

After speed, most Amigas will need more memory. This is especially true if you want to render 24bit images which use a lot of textures and maps. Like processing power, it's impossible to have too much memory, but try to aim for about 4Mb of Fast RAM. With this amount, you can create some astounding images and also have enough to play back a good sized animation. If possible, try to use super-fast 32bit RAM before PCMCIA slot memory as the speed difference will be considerable. A1200 owners might like to consider getting one of the trapdoor cards which feature a 68030 as well as memory.

Hot news from the States would lead us to believe that the makers of the Video Toaster really hate us PAL users. If refusing to build a Toaster we can use wasn't bad enough, they have designed an add-on board which used custom Risc micro-processors to speed up *Lightwave*, the Toaster 3D rendering program!!

## RENDER MODES

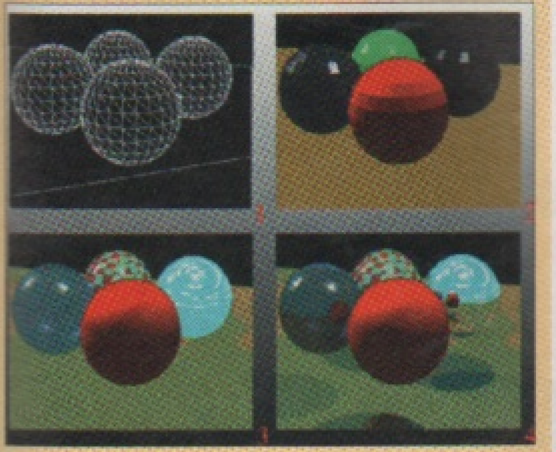
Beware using the term 'ray trace' indiscriminately, because there is a good probability the images you think are ray traced aren't. A ray trace is a very specific method of generating images with total optical accuracy, and many scenes are just too large to permit this form of rendering. Every software package offers different rendering options, and it's up to you to use the most suited for your scene.

**Wireframe** A wireframe rendition is very fast to create. In fact, some programs can produce them in near real time. They are ideal for a quick look at the form of an object in 3D, especially if a hidden line algorithm is used to make the objects appear solid. Wireframes are also a good idea for previewing animations, and checking on positions and viewing angles. The memory required for these 'outline' animations is very slight, and many seconds of motion can be replayed directly from ram disk.

**Solid or Draft** When you need to see a solid representation of an object, a view which also includes colour and shaded areas, use a simple solid mode. Textures and maps will not be present in such views, which speed up rendering considerably. Unfortunately, neither will the objects be smoothed so spheres will appear rather rough.

**Scanline or Shadowless** A scanline algorithm can generate very realistic views, in fact, many images will look perfectly acceptable rendered in this way. The computer looks at each 'scanline' of the display at a time, calculating how the objects in the scene would appear. Proper depth sorting (that is, which object is closest to the camera), smoothing, textures and shading are all possible, although reflections and shadows are not. A mirrored sphere will appear black, and no shadows will appear on the ground.

**Ray trace** For the ultimate in realism, an image will have to be ray traced. Each pixel on the display is imagined as a ray of light, and traced backwards into the 3D scene to discover where it originated. The ray may come directly from the background, or it may have been reflected from a mirrored surface and transmitted by a piece of glass. The 'depth of recursion' is an important factor in a ray trace and can dramatically affect the end result – picture the scene where two mirrored spheres are placed in close proximity. The scene will be reflected in one sphere, but this image will also be reflected in the other. This scene will then be reflected in the first sphere, and so on – theoretically for ever. A totally accurate scene would require infinite time to complete, but in practice a recursion level of 3 is used which limits the rendering time to an acceptable level. As ray tracing implements real physical laws, it is possible to construct optical instruments using lenses such as magnifying glasses or telescopes. Shadows are created, and environment maps – such as a picture of a cloudy sky – will be faithfully reflected. The many millions of calculations required means that a large ray-trace can take a considerable time to complete.



Each of the above scenes are identical, they have just be rendered in different modes.
1: Wireframe mode,
2: Colour shading,
3: Scan-line (notice the clouds are reflected in the sphere to the right, but not the other spheres)
4: Ray tracing (true reflections, and also correct modelling of glass - both reflective and transparent).

## TEXTURES

Another important characteristic of an object is its texture. This is a rather difficult concept to describe, but you can understand that the texture of a rough piece of wood is completely different to that of a snooker ball. Textures are different from material properties such as reflectance, because they actually alter the shape of an object rather than just its appearance.

There are usually two ways of specifying texture: using procedural methods and using bump-maps. Bump-maps are the easiest to understand, so let's start with those. Think of using *Deluxe Paint* to write your name on the screen, and then saving the picture as an IFF to disk. Now from within the material creation menu of any handy rendering program, you specify this image as a bump-map. Finally, you create a sphere made from this rather personal material, and render it. The finished image will appear to be a smooth sphere and your name will appear as though it has been embossed (or recessed). Most programs use the red component of the bump-map to specify the height of the bumps, which means using smoothly graduating red images create some startling images.

For more advanced use, the non-red colours in a map can be used to control reflectance or transparency. Procedural textures do without the bump-maps, and create the effect purely mathematically. For example, a good wave effect might be quite difficult to create by hand from within a paint program, but mathematically it's dead easy. Furthermore, procedural textures can be easily altered from frame to frame in an animation, thus the waves could be made to lap up on a beach.

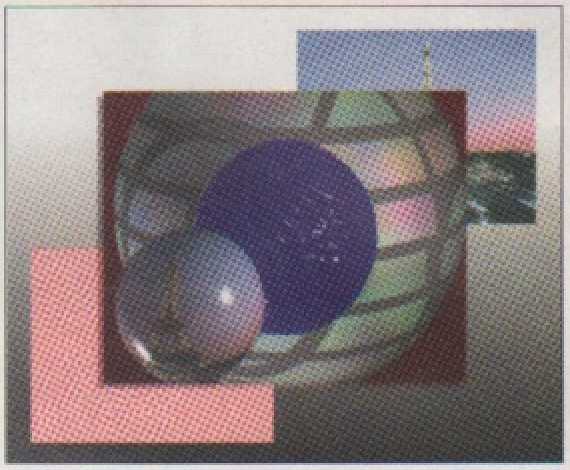
## HAND ME THE MAP

In order to add that final touch to an object, you'll probably want to add some fine detail: a piece of text or a picture for example. A soft-drinks can will need a logo on it, a computer monitor a display – and that's where mapping comes in. This is how mapping works in rendering programs: you create a picture in a paint package, and then supply it as a map. In this way you can add detail which would take for ever to do with normal object creation, and save a lot of time and memory into the bargain. Procedural maps can also be used to quickly form chequered floors or camouflaged army trucks. Animating or even morphing maps can have a profound effect on your finished work.

Other maps are often used to add the final touch to an image. Backdrops can instantly transport your objects to an alien planet, and environment maps can provide the shiny objects in your scene with a cloudy blue sky to reflect. The more maps you use, the more realistic the overall scene and the more memory you'll need to store them, as rendering programs need the complete map to be loaded from disk and stored in memory before rendering can begin.

That said, a chequered pattern only needs four pixels, two of each colour.

When creating extra high resolution pictures, 24bit graphics are essential for best results. Nevertheless, it makes sense to use 24bit maps only when the final image is to be rendered in 24bits. For quick previews, or HAM mode animations, 32 colour maps will probably suffice. *Imagine* has an automatic starry night backdrop, which can not only be used in 'spacecraft and planet' pictures but in producing more down to earth scenes such as 'twilight by the lake' scenes. When you use a previously rendered or digitised image as a backdrop, remember to match the position of the lights. If you don't, the image will have a subtly odd appearance, which the viewer won't be able to exactly pin-point.



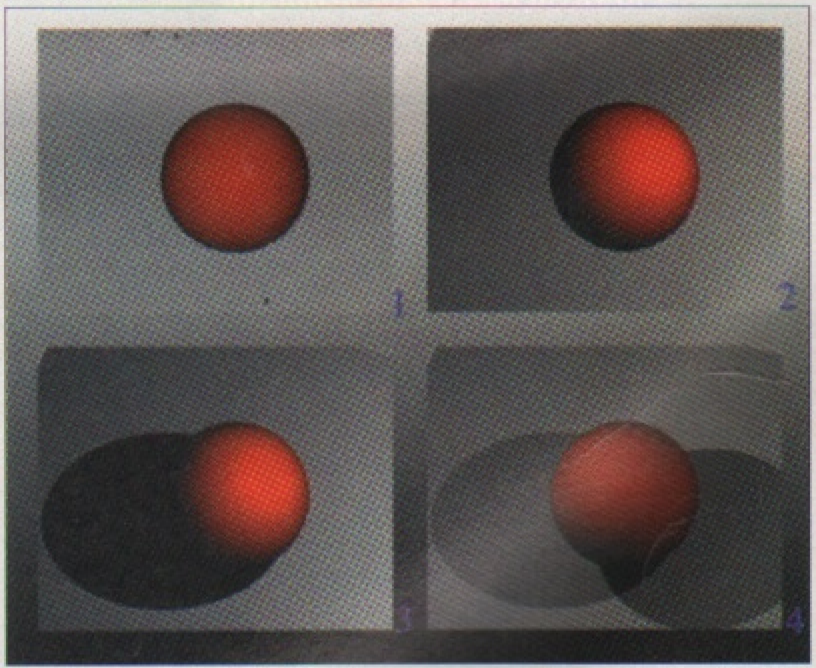
This image demonstrates several forms of mapping. The smallest sphere has the Eiffle Tower bitmapped wrapped around. The middle sphere is coloured blue and then given the rippled bitmap as a bump-map. The largest sphere has been given two procedural textures – a multicolour material and a tiling pattern

## LIGHT AND SHADE

To make the most of your objects, good lighting is essential. The default rendering mode in most packages will create a single light, positioned at the same position as the imaginary camera which views the scene. The result is a flat, lifeless image that does no justice to the subtle form of the objects in the scene.

Understanding how the lighting can be used to best effect is easy; try it and see. Take a visit to the local library and get out some books on portrait photograph, there you'll find the best way to position lights. The standard procedure is to use one main light, slightly above and to the side of the main object, with a smaller light acting as a 'fill lamp' to ensure the rest of the scene isn't in total blackness. If you want to render a scene situated outside, the best way is to position a light as far above the objects and then adjust the ambient lighting values to brighten dark areas.

The best images are those which provide the »




The addition of lights can make all the difference to a scene. The first image uses the default light for quick rendering, the second uses a slightly slower 'shadowless' mode. The third image was generated with full ray-tracing – hence the shadow – and the fourth uses two lights for a more rounded and realistic appearance.




One example use of rendering programs is to create 'virtual prototypes' of products which don't actually exist.

» most believable and realistic results with the smallest possible number of light sources. Each light added to the scene increases the rendering time, so if the effect of a light is barely noticeable: if in doubt, take it out.

Shadows are a luxury which most of us can't afford, because adding shadows will at least double the image rendering time. The extra calculations necessary to discover which areas are in shade mean that the shadow options should be reserved for extra-special images. Watching animations on TV will prove that shadows are not always necessary. When an image is changing 25 times a second, the extra realism they provide is not as important as you might think. Normally, the rendering process starts with fine-tuning the objects, followed by playing with the composition and rendering test pictures. Finally, when you're happy, you can switch the shadow option on and leave the computer to create the image overnight. Some programs, such as *Real 3Dv2*, allow you to cheat at creating shadows by adding your own shadow maps. This option also provides plenty of scope for special effects.

## 2D INTO THREE

Most rendering programs allow a rather sneaky way of creating objects by converting two-dimensional images into proper three-dimensional forms. One obvious use is the creation of 3D fonts to include in your latest 'spinning logo' work. The more adventurous user will make use of this 'extruding' feature with all sorts of 2D drawings, going so far as to create them from rather intricate work in *Deluxe Paint*. For example, creating a floppy disk object is incredibly easy if you can draw a blue, white and silver rectangle. Modelling is all about using these cheats to create realistic objects. The first and only rule of 3D rendering is, 'if it looks all right, it doesn't matter how you did it'.

## ANIMATION

There is no denying that the prospect of animation photo-realistic images is an exciting one. Creating your own cartoons or films is entirely possible: if you set yourself realistic goals. The main problem is the time it takes to create an image with the current hardware at our disposal. Even on a top-of-the-range 68040-based Amiga 4000, a relatively simple image will take at least 15 minutes to render with a decent degree of accuracy. If the animation sequence is to last as long as an average TV commercial, 30 seconds, and is to move at 25 frames per second, you are already looking at a rendering time exceeding a week.

Think of what would happen if, after the week's rendering, you discovered you had forgotten to add a backdrop or switch on a certain lamp and the work was ruined: the importance of previewing cannot be over stressed. The only way around the time problem is to reduce the rendering time of each frame, reduce the length of the animation and reduce the frame rate or to use more than one Amiga.

Therefore, kitting two A2000s out with the fastest 040 boards money can buy and keeping them running 24 hours a day may be the only solution to get work done on time.

Other problems quickly become apparent: 750 frames of colour image data consumes disk space faster than coverdisk programs. The serious animator will soon need to invest in some serious storage devices: optical disks and DATs spring to mind. Then output needs to be considered – can the entire film be animated directly from hard disk? Or will an external framestore and a single frame video recorder be required? It's an expensive business. A depressing argument against Amiga animation? Actually, it's not. All the equipment mentioned above is needed for professional level animations and doing that on a hardware platform other than an Amiga would cost at least ten times as much. The home-based Amiga nut, armed with minimum equipment, can still create animated films – it just takes dedication and a lot of imagination.

Rendering short scenes, playing them back with AAP (see July 1993 issue for details on this PD playback software) or MainActor and recording them section by section on a domestic video can produce outstanding results.




Taking simple text created with *Deluxe Paint*, extruding it into a 3D object with *Pixel Pro* and then rendering it with *Imagine* (using a cloudy sky environmental brush for reflections) is an easy way to create an impressive logo.

## CONCLUSION

The photorealistic output from rendering programs is so good it's spooky, so where can we go from here? The barrier at the moment is speed. Rendering a large image takes an awful lot of time, and even the promised 100MIPS 68060 won't supply enough power to solve that problem overnight.

However, with a combination of better coding and faster processors we can be sure on one thing – 3D images will only get better and better. Programs such as *Real 3Dv2* provide us with some hints as to what's to come. Imagine sitting in front of your screen, picking up objects with the mouse and actually throwing them around your computer generated world. Each object is rendered in full-colour in real time, reacting with others as they collide and interact. Using internal problem-solving programming languages, objects can be made intelligent.

The future holds the prospect of not just desktop video, but desktop movies. Soon, we'll be able to create stories using libraries of characters, objects, backdrops and sound effects. We'll write a script and then sit back as the virtual actors work it all out between themselves in the ultimate construction toy – artificial reality.

## LOOKING THE PART

**If you have an AGA-based Amiga, you can benefit from the fantastic HAM8 mode. Used in hi-res and interlaced mode, HAM8 pictures are practically indistinguishable from pure 24bit images as the Amiga has more than 262,000 colours to choose from for each pixel. What's more, HAM8 can be recorded directly to video tape. Amiga owners who own non-AGA machines have a slightly more limited choice – 16 or 32 colours depending on resolution, or the 4096 colour HAM mode. HAM can look very good, but it lacks the appearance of 'real colour'.**

**Various devices exist to complement Amiga graphics, from the rather blurry DCTV, through the bargain priced VLAB and antipodean Opalvision all the way to the Harlequin and GVP IV24. Some cards handle animation better than others, some feature built-in digitising, some genlocking and broadcast quality output. It's very plain the choice depends on application and resources, but don't waste money: if you aren't going to be using your Amiga in a professional studio, you don't need broadcast quality. When budgeting for graphic enhancing cards, remember that you may also need to invest in another monitor to see your new display. An ideal would be two 1960-style multisync monitors side by side, although in practice a cheap Philips monitor and a portable colour TV will suffice.**

## HOW THE PROGRAMS COMPARE

| Feature | Sculpt | Real 1.4 | Imagine2 | Aladdin | Real 2 | Cal24 |
|---|---|---|---|---|---|---|
| Scanline | Y | Y | Y | Y | Y | Y |
| Raytracing | Y | Y | Y | Y | Y | N |
| NMaterials | Y | Y | Y | Y | Y | Y |
| Textures | N | Y | Y | Y | Y | Y |
| Procedural textures | N | N | Y | Y | Y | N |
| Bump-maps | N | Y | Y | Y | Y | N |
| Multiple textures | N | N | Y/4 | Y/Any | Y/Any | N |
| N24bit support | Y | Y | Y | Y | Y | ish2 |
| AGA support | N | N | N | Y | Y | Y |
| External video support | N | N | Y/FD | Y/FDO | Y/P | Y/FDO |
| Animation | Y | Y | Y | Y | Y | Y |
| Particle animation | N | N | N | N | Y | N |
| Facet-Based | Y | N | Y | Y | Y | Y |
| CSG-Based | N | Y | N | N | Y | N |
| Soft shadows | N | N | N | N | Y | N |
| Gas objects | N | Y | Y | Y | Y | N |
| 2D->3D | N | Y | Y | ish1 | Y | N |
| Add Text objects | N | N | N | Y | N | N |
| ARexx | N | N | N | N | Y | N |
| Alpha channel | N | N | N | N | Y | Y |
| Manual | 3 | 3 | 1 | 2 | 4 | 3 |
| Features | 2 | 3 | 4 | 4 | 5 | 3 |
| Image Quality | 3 | 4 | 4 | 4 | 5 | 4 |
| Object creation | 3 | 5 | 1 | 2 | 5 | 5 |
| Scene Editor | 4 | 4 | 4 | 2 | 5 | 5 |
| Animation editor | 3 | 3 | 5 | 3 | 4 | 4 |
| Value for money | 2 | 5 | 4 | 3 | 4 | 4 |
| **Overall score** | **2** | **4** | **4** | **3** | **5** | **4** |

*1=Poor 2=Acceptable 3=Good 4=Very Good 5=Excellent*
*F=Firecracker video card O=Opalvision video board*
*R=Resolver video D=DCTV support*
*P=Practically all current video boards*
*ish2 = Caligari will only save images it has rendered, HAM8 for example. If a external framestore is used, 24bit saves may be supported. ish1 = Aladdin permits bitmaps to be traced by hand.*



BUYER'S GUIDE

**There are many image rendering programs available for the Amiga, there are even some available in the PD world, but don't expect animation support or a graphical user interface. Here we look at the current batch of programs, what they can and cannot do. If I appear particularly harsh, it's only to differentiate between programs, which to a certain degree at least, all do the same thing.**

# 3D Programs

## REAL 3D v1.4

### ALTERNATIVE IMAGES, TEL: 0533 440041, PRICE £99.00 (INC TECHNICAL SUPPORT).



From humble beginnings, *Real 3D v1* has grown into a very powerful image rendering program. Pioneering the use of a CSG-style modelling interface, *Real* allows even the most modest Amiga set-ups to produce excellent results. Using *Real 3D* means mastering three different screens: the object editor, the wireframe previewer and the solid rendering control panel. None of the screens are very hard to use, and the wireframe preview screen is particularly impressive; just twiddle a knob and the entire image rotates and zooms in or out.

Creating objects is simple, and the hierarchical structure allows both simple and complex scenes to be produced very easily. The animation facilities offered are also comprehensive, but very cumbersome. The manual is lacking in good examples, so a lot of what is possible you will need to find out for yourself. With *Real 3D*, bump-mapping was offered to the Amiga user for the first time, and the difference this made to how 'real' objects appeared was startling.

*Real 3D v1.4* must be the best value image rendering program available today. It's easy to use, doesn't require vast Amiga resources and produces fantastic quality output. It also offers an upgrade route to version two, but it will take a very long time indeed before you outgrow it.

**85%**

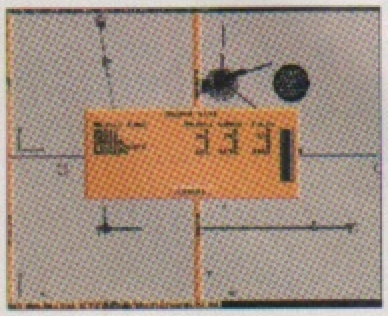
## IMAGINE v2

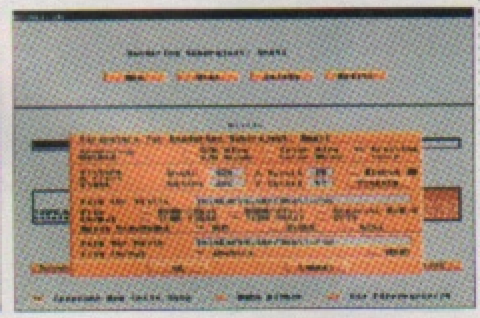
### HOBBYTE COMPUTING, TEL: 0582 457195, PRICE:£109.49.

Evolving from Turbo Silver, *Imagine* is probably the most popular image rendering program on the other side of the Atlantic. It uses a point-and-facet approach to objects and a multiple screen approach to editing. Objects are first created in the form editor, then given texture and mappings in the detail editor. The next step is to position them all in the stage editor, define their movements in the action editor and finally render the images in the project screen. Phew! The advantage to so many screens is a vast reduction of clutter; there are no unnecessary buttons or menu options where you don't need them. The disadvantage is that *Imagine* is a tricky program to get to know, and this isn't helped by what is quite possibly the worst manual ever written.

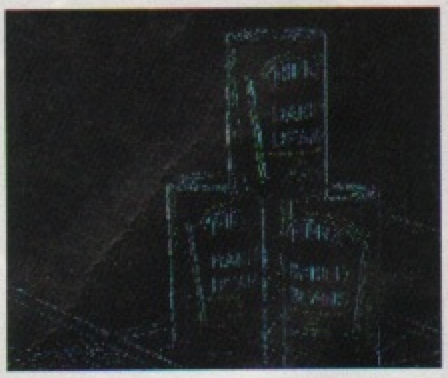
Animation support is the best of all the rendering programs examined here. Material support is also handled very well. In fact, the only weak spots are object creation and the manual. Although lacking some finer rendering options, *Imagine* is still a program I use regularly. Its popularity has resulted in several excellent software add-ons such as two packages of extra procedural textures called *Essence*. Someone had the wit to rewrite the manual, so it's essential that you buy *Understanding Imagine v2* when you buy the software. You can even get hold of pre-defined objects from both professional companies and the public domain, which can help circumvent the form editor in many situations. Version three of *Imagine* has been coming 'real soon now' for years, but it would now seem likely that the release will be held back until it can offer some serious competition to *Real 3Dv2*.

**86%**





## REAL 3D v2



### HOBBYTE COMPUTING, TEL: 0582 457195, PRICE:£394.90.

*Real 3D* has always been one of my favourite rendering programs, as it manages to combine some excellent features into the most user-friendly modelling front-end. With version two of this program, RealSoft have taken the entire concept a whole stage further. There is no doubt that this is the first on an entirely new generation of software. The clever part is the way that objects are dealt with as real physical objects, with mass, velocity and the ability to be acted upon by forces. In *Real 3D v2*, a ball will fall under the action of gravity, and rebound when it hits the floor. A wall built from bricks will collapse when a car crashes into them. A heavy box will bounce down a flight of stairs and all will be rendered in as much detail as you could possibly need. This particle animation system means that each object now has a set of tags which specify any physical properties required.

A unique feature is the ability to create your own user-interface. Most programs used a 'tri-view' display, but if you have a better way of doing things, *Real 2* lets you do it. You start with an empty screen, and then add as many windows are you like. Each window can display the scene from a different viewpoint, including rendered perspective views if you like, or can display the object hierarchy or a list of tools. You can even open a window on an external video-card. ARexx makes a welcome appearance (about time in a rendering program) but *Real 2* takes it one step beyond by also including its own internal control language.

Based on FORTH, the Real Programming Language permits some stunningly complicated animations that would be impossible any other way. To give you a flavour of what is possible, the manual contains examples on how to create your own snow-showers and bowling alleys. This form of animation has previously only been available on some very high-powered equipment.

*Real 2* is an amazing program. It's more than just a 'ray tracer', it heralds an entire new generation of desktop image generation. Probably the most important program ever written for the Amiga.

**95%**

# SCULPT 4D

## HOBBYTE COMPUTING, TEL: 0582 4571954, PRICE:£198.99.



I remember using *Sculpt* when it first appeared and being totally gobsmacked with the images I produced. Now, years later, *Sculpt* is so far behind the competition that it isn't really worth considering. The reason is simply one of economics; Byte-by-Byte, the creators of *Sculpt*, reckon that the effort and money spent on creating a professional level rendering would simply not be recouped. Instead, they moved up- market and concentrated their efforts almost solely on Apple Macintosh platforms. It's sad, but Byte-by-Byte have forgotten their roots.

**45%**

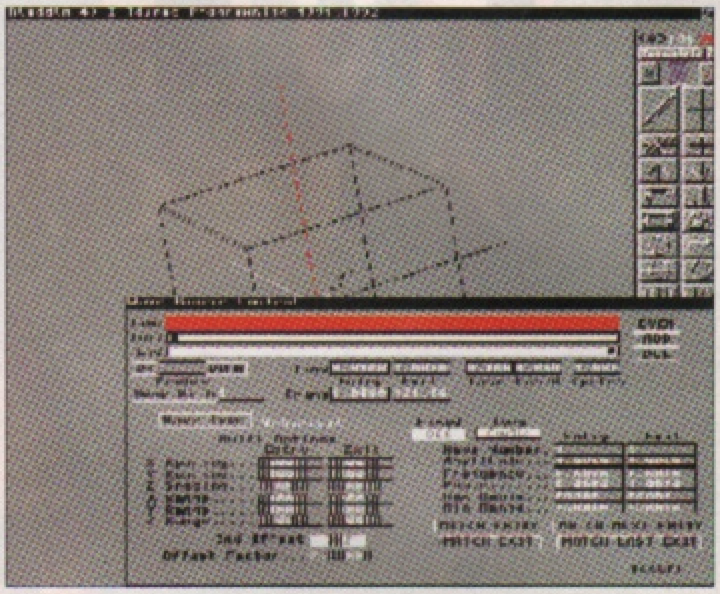
# Aladdin 4D

## HOBBYTE COMPUTING, TEL: 0582 4571954 PRICE:£213.99.

Yet another update, *Aladdin* used to be called *Professional Draw 4D* in an earlier life and retains much of the features of its ancestors. A polygon-based system, *Aladdin* offers practically everything that *Imagine* does (good image quality, bump and texture maps, animation) but arranges the options in a slightly different way. Gone is the tri-view and multiple screens, instead we have one rotating axis in the middle screen and a problem. Since *Aladdin* is so close to *Imagine* in terms of features, it needs to offer what it has got in a better way. Some would say that their ideal rendering package would have the power of *Imagine*, but with a easy to use interface and a good manual.

Unfortunately, *Aladdin* is not it. Instead, it seems to be a retrograde step. With a change of name, the author should have used the opportunity to completely redesign the user interface. There is no shame in copying the familiar tri-view design – after all it has been used in Technical Drawing classes for hundreds of years. There is no excuse for banks of unintelligible icons, looking so confusing you need to look up the manual anyway. Of course, most of this is from a purely subjective viewpoint.

The rather strange inclusion of Encapsulated PostScript and *ProDraw* clip support might mean that *Aladdin* can capture a niche market in 3D Desktop PublishinG and then again it might not.



**70%**

# Caligari24

## AMIGA CENTRE SCOTLAND, TEL:0896 87583, PRICE:£299.

*Caligari* has been one of those programs which seems to have been with us for years, and yet it also seems to have avoided a lot of attention. With earlier versions this was probably due to the fact that using it was a pig, and results also left a lot to be desired – but that was then, this is now. The back of the box proclaims '*Caligari* – New! 32bit colour!' but don't get your knickers in a twist, that doesn't mean 24bit has been superseded already. Instead, *Caligari* supports an 'alpha channel' which is most useful when combined with some video. Think of it as a form of genlocking, except that the live background can show through rendered objects which are transparent.

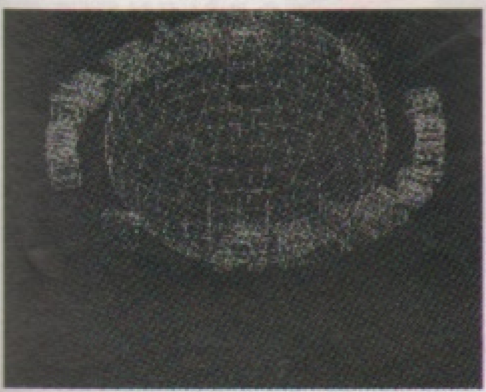
The blurb on the back also mentions 'organic deformations', which are great fun as you can stretch objects as though they were made of some form of 'Stretch Armstrong' material. What the box doesn't tell you is that *Caligari* is not a ray tracer; it uses scanline rendering methods only. Now, this isn't a big disadvantage. In fact, nine times out of ten it's a positive advantage as scanline algorithms are much faster than a proper ray trace. You needn't worry about shadow effects either, as through cunning use of depth buffers shadows are handled almost perfectly. There is no doubt that photorealistic images are possible, but be aware that if optically perfect modelling is your thing, you should think of *Real 3D* first.

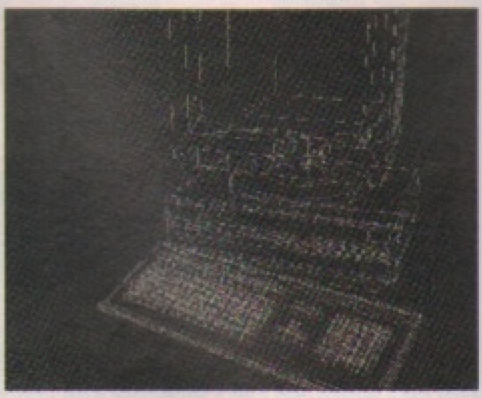
*Caligari* does have several advantages over any of the other rendering programs looked at here, the biggest being the excellent object and scene editing system. Rather than plump for the traditional technical drawing tri-view, *Caligari* uses one single, huge view which shows what's going on in true perspective. The view can be spun, moved and resized extremely quickly with only a few mouse clicks, and when the many tools are applied the overall effect is astounding. More than any other program, creating an object with *Caligari* is like modelling in some form of magic clay. Your virtual hands can shape, stretch and mould the wireframe objects with minimal effort – after using *Imagine* it's a revelation. It's like *Aladdin*, but it's good.

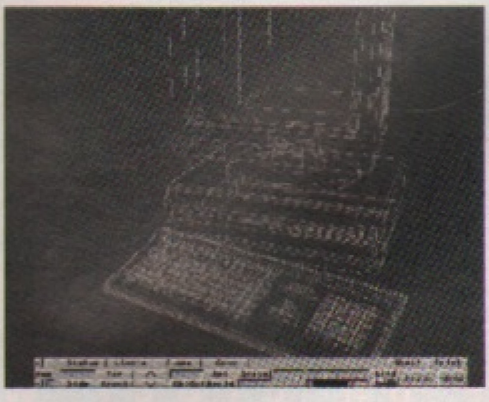
There is a catch to all this, and it's rather a big one, I'm afraid. In order to attain the sort of speeds necessary to manipulate the objects, *Caligari* switches off the Amiga's operating system. Yup, hard to believe, but gone is multi-tasking. No Amiga-M or Amiga-N, and even worse no flicker-free double scan display on suitable monitors when an AGA machine is used.

At first, I was horrified that Octree could cripple my Amiga in this way. Then I remained horrified as the realisation that words such as *ARexx* and *Caligari* would never appear in example tutorials together. Finally, I stayed horrified, as it really is awful returning to a PC-like environment, no matter how smooth the object manipulation is. The only thing to wake me from my petrified state was the complimentary and explanatory videotape that fell from the box. At last, a software company with some sense: you would be very surprised by the number of modelling and graphics programs which come supplied with manuals with little or no pictures. Watching the video impressed me enough to persevere, and I have to say that maybe, just maybe, Octree mightn't spend the afterlife toasting in the company of Scandinavian chip-ram only demo coders. The object manipulation is really smooth, and even the animation editor is simple to use. It might not be a next generation program like *Real 3Dv2*, but *Caligari* is probably the easiest package of all to use. The output quality is more than adequate, even though it would appear that saving a pure 24bit image is not allowed and only IFF variations, such as HAM8, may be stored.

**80%**







**The *Caligari* editor combines speed with easy of use. The catch is that intuitions is put on hold, so no multitasking I'm afraid. The quickerender option lives up to its name. *Calagari* doesn't hang around much at all, especially on machines fitted with maths co-processors.**

# 100% ALIVE

Pick up someone else's litter

Send your mum some flowers

Strip right down to your underwear

Go for a run around the block

Tune your radio to Kiss and pull the knob off

Believe in yourself

Eat a pineapple

Write the alphabet backwards

Meet an old friend you haven't seen for years

Make a record

Dance the dance electric

Plant a tree

Learn a second language

Go and see Ryan Giggs

Get your nipple pierced

Ring 071 700 3100 and tell London something it needs to know

Play football in the street

Give £100 to a down and out

Make a statement

Order an empty skip and leave it outside your house for a week

Learn something new every day

Throw away your watch

Laugh

Take a picture of your back

Go for a day without speaking

Every day at the same time stop and think about something wonderful

Say a prayer every night

Have a day without TV

Read a page from a book by Charles Dickens

Hug someone of the same sex

Put your change into a bottle for a year and give it to charity

Visit Great Ormond Street Hospital

Go to the market and spend 10p

Help someone today

Wear a wig

Make everyone at work a cup of tea

Write to Mother Teresa

Turn your radio up full blast

Teach a child to read

Buy a book on Jeff Koons

Stare at the clouds for a full ten minutes

Buy Marvin Gaye's 'What's going on'

Tell someone a secret

Begin something you've always wanted to begin

Talk to a child about the future

Think purple

Wallpaper the inside of your car

Go on holiday and don't take any luggage

# SCREEN SCENE

**Strap in for a roller coaster ride through all the new game releases.**



A CU Screen Star is for games scoring 85%-92%. If a game gets one of these, it'll be of lasting quality and you can rest assured that, if you decide to purchase it, you won't be wasting your money.

AMIGA SCREEN STAR

93% and a game's worth a Superstar. We hardly throw them around, but if a game gets one it'll be completely outstanding.

SUPER STAR

# FIRST

**The games scene is bursting with releases in the run up to Christmas. Here's our selection of the best and the worst it has to offer.**




Whenever you collect an object in this game you'll be able to examine it. However, some objects have no use other than as decoration.

***THE GAMEPLAY:*** Take the set from *Blade Runner*, add a dash of *Invasion of the Body Snatchers* and you'll get a pretty good idea what *Dreamweb* is all about. This top-down adventure pits a lone player against the forces of evil (again!?!).

Your character has been chosen by the Guardians of the *Dreamweb* – a sort of virtual reality of dreams – to hunt down and kill seven evil beings that have assumed human form.

***WHAT'S NEW:*** Not the plot that's for certain. However, this game is unusual in that it is probably the first top-down adventure to appear on the Amiga. There have been other games that have utilised this perspective but not within the adventure genre. There's even a magnify mode that blows up the section you're in, so you can spot tiny objects.

***BEHIND THE SCENES:*** This game's been in production for nearly three years, which isn't surprising given that there's only two coders.

The team, called Creative Reality, is comprised of Neil Dodwell and David Dew. Their attention to detail is astounding with many active objects at every screen location. They've even designed a custom editor especially for *Dreamweb*, which is the reason for the consistency in style throughout the game.

***FIRST IMPRESSIONS:*** Wow! Gimme, gimme. This whole game oozes character, the mood is sombre, the graphic style distinct and the use of an overhead view breathes life into a formulaic genre.

*Dreamweb* is also extremely violent; if you thought *Syndicate* was bloody wait till you see this. For instance, the first being you have to kill is impersonating a rock star and you have to hack your way through his bodyguards with a fire axe before blowing him away with your pistol – all depicted in full colour gore! Definitely an adult game.



Oops, someone is trying to escape. Well, he won't get far – not after I introduce my 45 to his engine.



As with any adventure character, interaction will play an important part of the game's development. Here Ryan, the star, is about to get fired from his job in the bar.

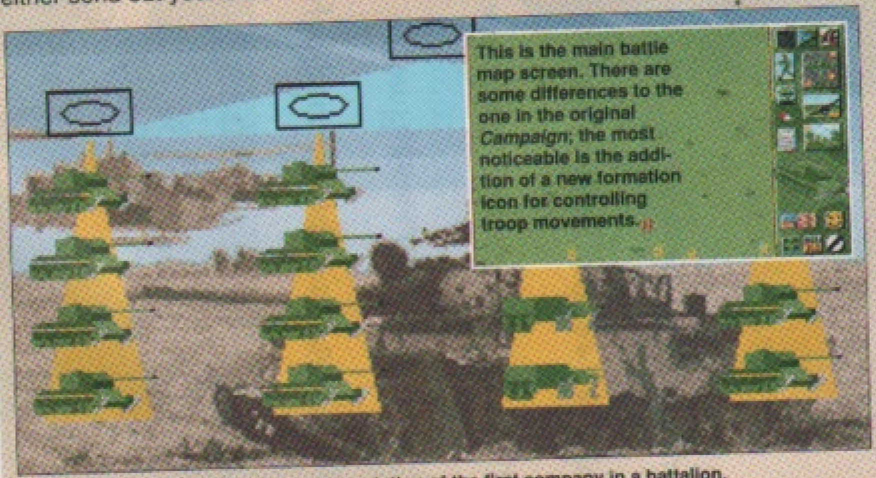
# CAMPAIGN II EMPIRE SOFTWARE

***THE GAMEPLAY:*** A tank-based strategy sim, incorporating a mix of overhead-map planning stages and a 3D first person-perspective combat section. Essentially, the real beauty of *Campaign* is the ability it offers to either send out your orders to commanders and then sit back and watch the battle unfold, or to actually jump into individual vehicles for a more close up view of the action.

***WHAT'S NEW:*** The whole system has been overhauled to include all the post-war vehicles from Abrams battle tanks to modern helicopters. This means that the coders have had to incorporate a whole new range of weapons systems, including guided missiles, night sights and laser rangefinders. So, there's been over 100 new 3D shapes added and there's even animated infantry which can be deployed from armoured personnel carriers.

***BEHIND THE SCENES:*** After the success of the original *Campaign*, the team decided to expand the scope of the game. To achieve this, they consulted military experts about the complex strategies that are used in controlling armies at all levels of command. Basically, all this means is that you can now control everything from individual tanks in battle through regiments all the way up to whole divisions.

***FIRST IMPRESSIONS:*** At first sight it appears to differ very little from the



This is the main battle map screen. There are some differences to the one in the original *Campaign*; the most noticeable is the addition of a new formation icon for controlling troop movements.

Here we have a diagrammatical representation of the first company in a battalion.

# IMPRESSIONS

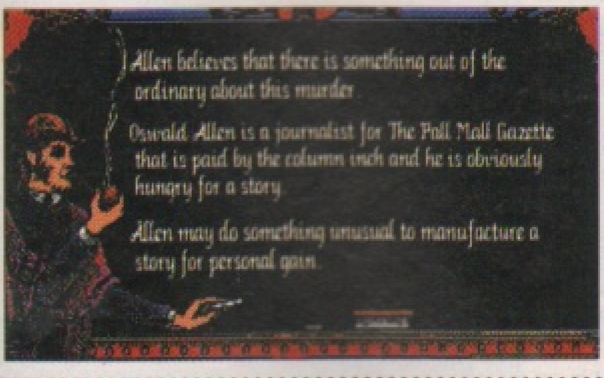
## JACK THE RIPPER
### MIRAGE



***THE GAMEPLAY:*** In 1888, a series of grisly murders took place in London. Victims were butchered before having their intestines wrenched out. The press quickly seized on such macabre events, nicknaming the murderer Jack the Ripper. Although a manhunt was launched, no-one was ever charged with the murders, and the case has remained one of the great unsolved crimes of the Victorian era.

Now, you have the chance to solve the case for yourself. This game is an authentic recreation of events, and it's up to you to piece together the fabric of evidence as it unwinds and solve the crime.

Everything in the game is mouse-controlled with a series of pull-down menus used to access some of the more complex game commands, such as questioning suspects for information and storing any vital clues. Upon visiting the scene of a murder you have the chance to investigate the general vicinity for a murder weapon and interrogate any possible suspects.




There are numerous ways to complete the game, with each clue uncovered adding to your overall score.

Each time you load up the game, a different set of clues are created and these can shift the finger of suspicion on to any one of a number of characters, so no game will be exactly the same.

***WHAT'S NEW:*** Not a lot really. This is a direct port from the PC version, with no enhancements whatsoever.

Rather than opt for a LucasArts-type adventure, the game's developers, Intergalactic Software, have used a rather staid windows-style environment.

***BEHIND THE SCENES:*** The game's been designed by Ezra Sidran, the programming brains behind the highly-rated *Universal Military Simulator* (UMS).

Ezra has spent many months painstakingly researching the murders, slowly building up a vast database of knowledge to incorporate into the game. The result is a factually-accurate murder mystery which incorporates over 100 actual persons/suspects as well as dozens of authentic locations.

***FIRST IMPRESSIONS:*** The sheer wealth of detail included in the game makes this an ideal way to learn about the Ripper killings. Ezra has unearthed a treasure trove of interesting facts and incorporated them into a game which is crammed with clues and red herrings. It's literally a race against time to track down the killer before he strikes again.

Although the game's graphics are decidedly ropey, it remains to be seen if the gameplay can rise above such superficial considerations. Full review next month.



POLICE NEWS

London, England | August 31, 1888 | Price: One Penny

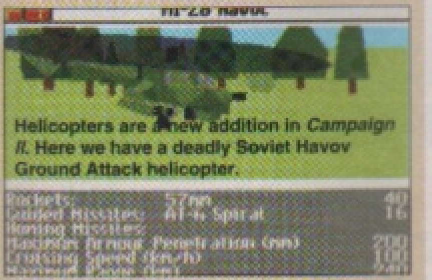
MURDER MOST FOUL! BODY FOUND IN BUCK'S ROW!

The body of one of the unfortunates that reside and attempt to eke out a living in Whitechapel was discovered early this morning. The corpse of Mary "Polly" Nichols was discovered in Buck's Row at 3:40 AM, August 31. No murder was ever more ferociously and brutally done. The knife, which must have been a large and sharp one, was jabbed into the deceased at the lower part of the abdomen and then drawn upwards not once but twice.

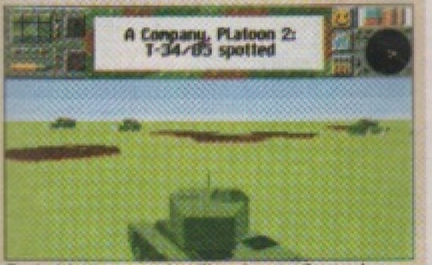
TWO GREAT FIRES AT LONDON DOCKS!

Two great fires broke out last night on the London Docks. The first fire started about 8:30 PM at Spirit Quay, South Dock and continued to burn until it was extinguished about 11:30 PM. The second fire started about a bit later at Messrs. Gibbs & Co's engineering works in Shadwell Dry Dock, destroying a ship's rigging and spars, and then spread to Gowland's Coal Wharf. The fires were visible throughout the evening of August 30-31 and attracted a large crowd.

original *Campaign*, so it remains to be seen whether they have tweaked the gameplay sufficiently to make it a step on from its predecessor.



Helicopters are a new addition in *Campaign II*. Here we have a deadly Soviet Havov Ground Attack helicopter.



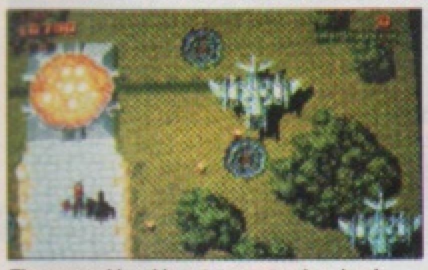

Probably the most familiar view to *Campaign* players is this 3D representation of a battle. As ever this one shows a platoon of American M26 Pershing tanks about to take on the Russians.

## RAIDEN
### U.S. GOLD

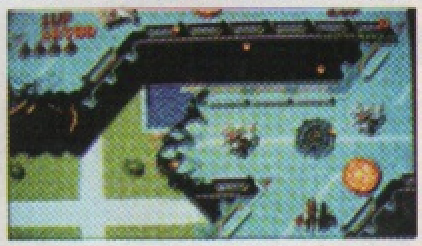
***THE GAMEPLAY:*** Pilot the experimental *Raiden* Close Assault Striker to defend the Earth from hordes of alien invaders in this classic coin-op conversion. The programmers aim to provide a perfect recreation of the original Seibu coin-op complete with 100 per cent accurate attack waves, eight levels and over 1500 unique enemy sprites.




The game starts out in the country where you must locate a crashed alien transporter and then blow it up.



The second level is set over an urban landscape. The enemies change accordingly with more industrial-type attack vehicles.



The game uses many section guardians – ships that require multiple hits before exploding then offer pick ups to boost your capabilities.

***WHAT'S NEW:*** Very little about this coin-op conversion is anything like new. The graphics, gameplay and overall concept have been done so many times before that it will take something really special to make it into a success. However, that said, fans of the coin-op may love it.

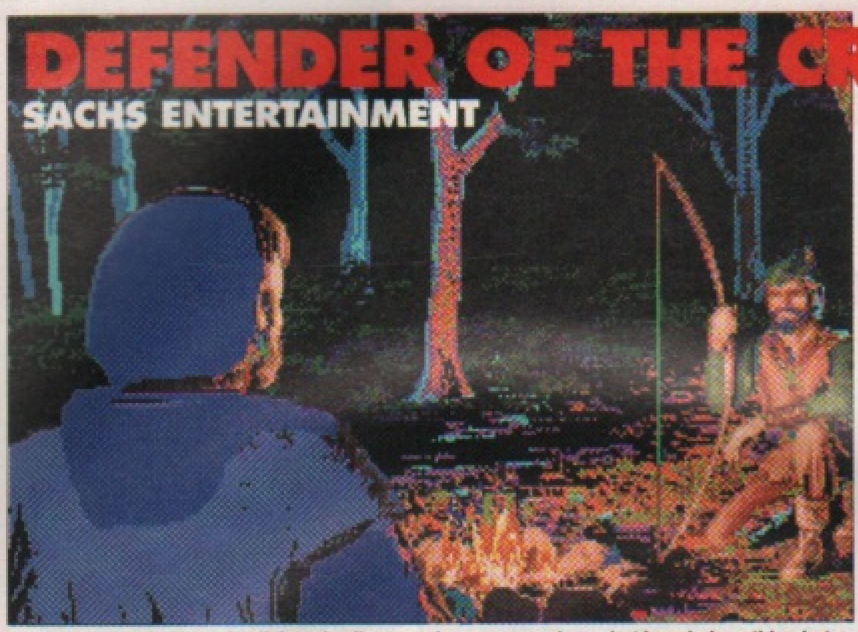
***BEHIND THE SCENES:*** The little something that could make *Raiden* a classic is the addition of a special attack wave editor. It was developed for use in mapping the waves in the coin-op so that they could be accurately transferred onto the Amiga. However, the team are now planning to release it as a stand-alone companion to *Raiden* so that you'll be able to modify waves any way you want thus prolonging the game's life. Its potential as a successor to the *SEUCK* is obvious.

***FIRST IMPRESSIONS:*** Apart from the editor there seems little about *Raiden* that raises anticipation levels. This type of game is so easy to produce on an Amiga that it'll even run on half meg machines. Despite being a great fan of the coin-op, I won't be drooling for this release.

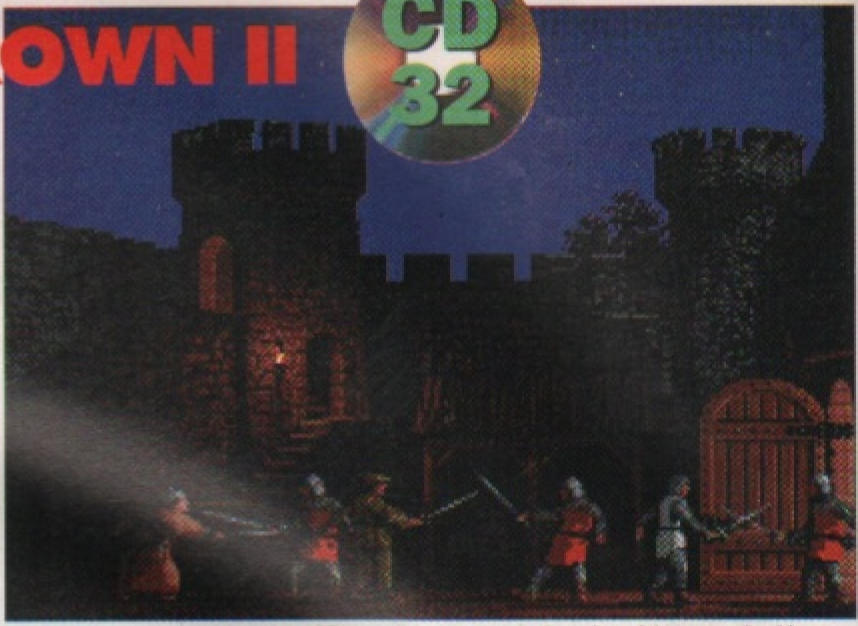
# DEFENDER OF THE CROWN II

## SACHS ENTERTAINMENT

CD 32



So much for Robin Hood. In all the tales I've seen he was a good guy, but here he's nothing but a pain nipping into your castle and stealing the cash.



With the storage capabilities of the CD32 available the finished version of the game should not only 256-colour still shots but actual animations as well.

***THE GAMEPLAY:*** Set in England in 1192, the aim of game is to raise enough money to rescue King Richard the Lionhearted, who's being held prisoner by Leopold of Austria. The ransom has been set at £20,000, most of which can be acquired by careful taxation of your land. Obviously, the more land you own the more money you can raise. Basically, the idea is to raid and conquer neighbouring territories through sieges, mass combat and jousting tournaments. In between, you'll have to deal with Robin Hood types nicking your cash and distractions in the form of damsels in need of rescue.

***WHAT'S NEW:*** As well as being one of the earliest CD32 releases *Defender II* looks like being the first truly international game with English, German, French, Italian and Spanish language versions all on the same disc. This is quite some feat considering professional actors were used to read all the text on the title screens, the in-game text boxes and all other narration.

***BEHIND THE SCENES:*** The guy in charge of *Defender II* is Jim Sachs, who was the graphics artist on the original game. It's has been written using a development language called *The Director 2*, with Jim writing completely new code and trying to enhance just about every aspect of the original game. One particular area of concern was the music. So Jim used a variety of tools to create state-of-the-art sounds for the game, *Music-X* helped composition, whilst a Roland MT-32 ( a 32 channel music board) was used to to generate the synthesised instruments.

***FIRST IMPRESSIONS:*** If any one game was responsible for the mammoth success of the Amiga it was *Defender of the Crown*. All of a sudden, while others were still playing around with C64s and Spectrums, along came a game that thrust us all into the world of 16-bit. *Defender II* should be quite a significant title on its release, having the ground-breaking reputation of its predecessor to back it up.

Whether it will prove as revolutionary as the original remains to be seen. What it should do though is provide a whole new generation of games players, the ones who missed the thrill of the original, with a chance to experience what we 'oldies' went through first time.

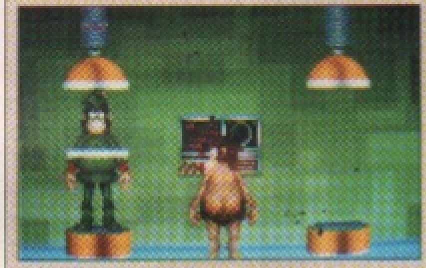





Above: Jousting is an important element in *Defender II*. There are many ways of raising the cash you need and holding a tournament is one of the most exciting.
Right: You can access the different sections of the game using various map screens like this. Your current cash value is shown here too.

# EVOLUTION: LOST IN TIME

## U.S. GOLD



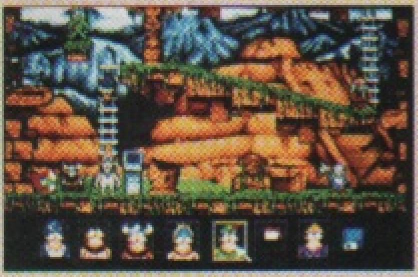
Whenever an alien artifact is found an used for the first time the game will present you with a humourous cartoon.

***THE GAMEPLAY:*** Set in an alien base, the aim of the game is to guide your characters through 80 levels of deviously designed platforms to reach matter transporters so they can get home. If you've played *Humans*, also from Imagitec Design, then you'll have some idea what this is about. Not exactly a sequel, more a progression, it uses one of the cavemen from the first game and teams him up with six caricatures of historical figures in a platform based puzzler. The other team members include, Robin Hood, Merlin, and Confucius, each with their own special ability that can be utilised to help you solve the puzzles.

***WHAT'S NEW:*** The first major change to gameplay is the use of seven very different characters with special abilities. Also, the levels have been grouped in sets of 20 so that you can solve the levels in any order you wish before progressing to the next group. The user interface has been altered too – you select characters by clicking on them or on their portraits below the main screen. Compared to other games in the genre there's not really anything that makes Evolution stand out.

***BEHIND THE SCENES:*** The game has been in development by an eight man team for over nine months. They carefully analysed the reviews of Humans as well as comments made by purchasers in an attempt to construct *Evolution* in a form that would have a much greater appeal. This is evident in the difficulty curve that's been built in with extensive testing taking place to ensure that it is pitched just right.

***FIRST IMPRESSIONS:*** There are so many platform puzzler available these days that it's difficult to produce something that'll make a lasting impression. No matter how many cute characters you have or special powers they possess a game like this is made by how addictive it is. Opinions must therefore be reserved until we get hold of a review copy.



Despite the fact that the game is set on some alien moonbase far away at the other end of the universe this scene bears a striking similarity to Earth!

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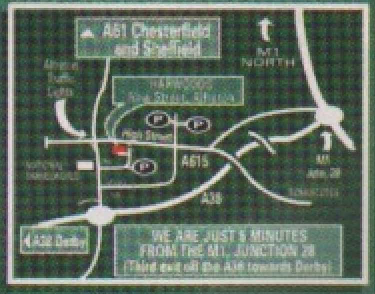
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# *Virgin* INTERACTIVE ENTERTAINMENT

**Big name games seem to fall in their lap. Is it luck or good business? Jon Sloan tries to regain his Virginity.**

## MORTAL KOMBAT

**PROBE SOFTWARE**

WIP



One major game license that Virgin recently acquired was for the coin-op conversion of *Mortal Kombat*. It's not surprising that they quickly snapped it up when you consider the stir it's been causing. It makes *Streetfighter 2* look like a walk in the park and has taken the arcade world by storm. With huge digitised fighters delivering gory death blows to their opponents, there have been many calls to ban it.

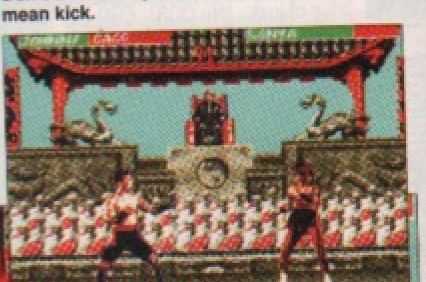
Even so it's almost impossible these days to walk into an arcade and not see one of these machines somewhere. Indeed, almost every form of media that deals with games is featuring *Mortal* somewhere soon. The promotional hype recently reached fever pitch when the real life 'characters' flew over to the UK to take part in a Gamesmaster challenge. But is all the publicity worth it?

### BEDTIME STORY

The game carries the usual completely bogus storyline about a group of disparate fighting dudes who've got together for various reasons and are travelling off to some mysterious oriental island to take part in a martial arts tournament. [*Hmm... anyone seen Enter the Dragon? – Ed.*].

Anyway, the tournament is run by Shang Tsung, an ageless ex-champion who feeds on the souls of the defeated fighters and is protected by the new champion Goro, an eight foot tall, four-armed alien prince. To progress through the tournament you've got to face all the other fighters in best-of-three-rounds matches. To make it tougher, if you manage to best them all you move on to face clones of yourself, as well as endurance rounds where you fight two opponents consecutively with only one energy bar for yourself.

Johnny Cage and Sonya prepare to fight. Don't take it easy on her 'cos she packs a mean kick.






At the moment, the sprite that's working the best is Liu Kang. Here he's in a mirror match with himself!



When you win a battle this screen comes up. The digitised faces are shown at their best here.


All of the characters will be able to perform the moves they do in the arcade, including the secret ones.

You're given the choice of playing one of seven competitors who're almost as weird as Shang Tsung. There's Liu Kang, a Shaolin monk; Kano, the cyborg leader of a criminal gang; Rayden, an immortal thunder god; Sub-Zero, a Ninja assassin; Johnny Cage, a martial arts movie star; Scorpion, a reincarnated ghost; and finally, Sonya, a member of an elite army unit who're chasing Kano.

These guys all have the usual range of fantastic moves as well as at least two special ones. For instance, Sub-Zero can shoot bolts of ice to freeze opponents ready for a free punch; whereas Johnny Cage has a Shadow Kick which moves him at super speed.

## RE-VERSIONARY

Most versions of *Mortal* are being coded by Probe Software, the development team responsible for such hits as *Alien 3, Outrun Europa and Mutant Turtles.* Of course, the only real question on everyone's lips is, will the Amiga version be as good as the arcade machine? The head of Probe, Fergus McGovern, is fairly confident that *Mortal* fans will not be disappointed by their efforts. "It's going to be the best copy of the coin-op that the Amiga's technology can handle," he said. To back this claim up he pointed out that Midway, the owners of the original, have helped them tremendously providing not only all the original code but also DAT tapes containing all the sound effects and speech, as well as the original footage of the fighters before it was digitised. This enabled Probe to tailor the digitising of the characters to each individual system. "Since we're using the arcade source code, all the scoring, hit zones of the players and artificial intelligence of the computer-controlled characters is exactly the same. In addition, all the blood splatters and death moves will be included – the Amiga version will be exactly the same as the Mega Drive one."



After every few matches you're given a chance to increase your points by attempting to break inanimate objects. As Bruce Lee once said, 'Boards don't hit back!'

Like *Streetfighter* the coin-op version of *Mortal* has a large number of buttons, seven to be precise. How will Probe manage to convert all these input devices into an Amiga joystick with just one fire button? "We're still looking at ways to get around this but we'll certainly keep away from the distance-sensitive method used in the *Streetfighter* conversion. At the moment, we're using a combination of keyboard and joystick so that we can keep all the original moves and let the player decide when he wants to use them.

However, we're looking at a method to utilise all the moves from the joystick. What will probably happen is that you hold the firebutton down and move the joystick rapidly in a set pattern to execute a certain move" Fergus added.

There's still a fair amount of work to do on the Amiga version but now the playability is shaping up a treat. The characters are pretty nippy and all the original moves are in place. 'If you've played the Mega Drive version then you'll know what this one will be like 'cos they are going to be an exact match' Fergus continued. Judging by what we've seen so far there's no reason to doubt him. In fact, we like it so much that we've secured a coverdisk demo that'll be winging its way to you shortly. CU


The current Tournament Champion is Goro. This alien half-dragon creature has more moves than a snake. The only way to beat him is to keep away and use your missile attacks.

### COMIC CAPERS

As part of the promotional hot air surrounding the game, Midway, the coin-op manufacturers, have produced a collector's comic that goes into greater detail about the motives of each fighter. Whether it will expand into a regular series is unclear. I mean how many different stories could they run? Oh look, another story about the time Raiden beat up Liu Kang!



Oh dear, its seems Johnny didn't pick his guard up quick enough. I guess he won't be doing many photo shoots from now on.



WIP

# » TERMINATOR 2 – THE ARCADE GAME

## PROBE SOFTWARE



The second major license that Probe are working on for Virgin is the Amiga conversion of the excellent *Terminator Arcade Game*. This is far removed from Ocean's film license tie-in which, by any standards, was abysmal. The coin-op is a sort of *Operation Wolf*-type game where you play Arnie 'the good Terminator' and use a moulded plastic Uzi to blast anything that comes at you. Of course, the Amiga game won't come with its own toy gun, you'll just have to make do with a simple on-screen target.

The aim of the game is to travel back in time from the future to protect a lad called John Connor who is destined to become the leader of the human resistance movement.

Apparently, in 1996, SkyNet, a computer controlling America's nuclear missiles, becomes self aware and decides to get rid of all the humans. In the ensuing holocaust one man rises up to resist this destruction. That man is John Connor. After failing to destroy him in the future, SkyNet send a liquid metal killer robot back to 1992 to kill him. It's your job to protect John, destroy the T-1000, then travel back to the future to blow up SkyNet. Sounds simple? Well, SkyNet knows what you're up to and is throwing everything it has against you, including other Terminators, and deadly Hunter/Killer machines. If that isn't tough enough you've also got to protect other members of the resistance when you see them so you can't just blast away without a care in the world.

To give you a little help there are loads of supply crates sitting around. These often contain useful bits of kit like rocket launchers and plasma pulse generators. These can be bolted on to your gun and will give you extra firepower for a limited period.

The game is still in the early stages of production at Probe but we managed to nab a few screenshots for you. We'll bring you a fuller Work in Progress soon. CU



Just like the coin-op, you're made to face countless androids and humans right from the start.



If you thouht everything would be scaled down for the Amiga version, think again!



It's when you get a couple of massive armoured vehicles like these that it really gets tricky!

PROFILES PROFILES PROFILES PROFILES PROFILES PROFILES PROFILES PROFI



PROFILES

Few games companies can claim the same level of success that Virgin have had in recent years. They have consistently crossed the boundaries of gaming excellence producing some of the top games ever seen on any format.

What is the secret of their success? Is it the money, the name, or the ideas? In an effort to fathom their secrets our roving reporter spoke to VIE's Marketing Director, Sean Brennan, about the way they operate.

### GETTING AN ANGLE

With their top-quality products, VIE have established an enviable position within the games industry. I wondered how much of that was due to them starting out with a very famous person's backing. "Having the strength of a large group behind you doesn't necessarily guarantee success. You can still screw it up" Sean (VIE's Marketing Director) pointed out. "But it does mean that you have the resources at your fingertips.

For example, if someone approaches you with a knock-down proposal you don't have an immediate panic about cash flow or whether there's sufficient budget to cover a major purchase. That said, the name and its image help in attracting developers, too.'

It would be also easy to accuse VIE of milking its ties with other parts of the organisation but, in reality, all the Virgin companies work on an arm's length basis with no one part obtaining an advantage over an external firm. This means that no matter how hard VIE beg, Virgin Retail will not give them favourable shelf or display positions just »

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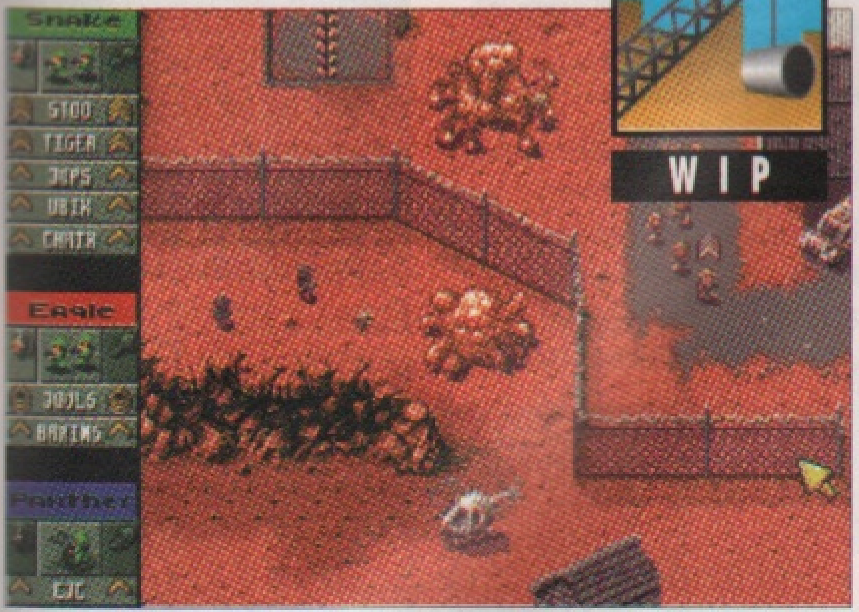
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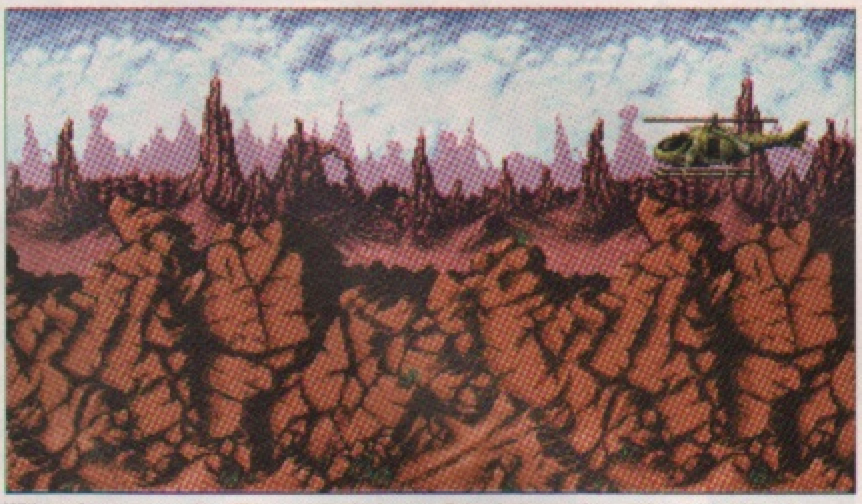
# CANNON FODDER

## SENSIBLE SOFTWARE

WIP



*Cannon Fodder* allows you to split your team into different units each with their own objectives. Here the last team has taken over an anti-aircraft battery so they can have their own firework party.


With each new stage there'll be a shot of a 'copter flying in low to deposit its cargo of battle weary veterans.

Described as cross between *Lemmings, Mega-Lo-Mania* and *Paintball, Cannon Fodder* is the next major project from the Sensible boys.

The game's been in production since the early half of 1991 but was put to one side after work started so that other projects could be completed. It wasn't until May of this year that Virgin was signed up as publishers for the game.

As with many Sensible projects, *Cannon Fodder* is going to be laced with a fairly sick sense of humour. For instance, it'll keep score using a football type body count so that when three of the enemy are dead it will be flashed up as '3-0'!

When one of the team gets blown away you'll be treated to a screen showing graves, the better you've done the bigger the headstone will be.

This mix of satire and violence is bound to get some people pretty heated about the way such a serious subject is treated, but that is exactly what the Sensi boys are hoping for. Jon Hare, one of the Sensible team, says that 'Cannon Fodder's the game we've always wanted to write – it makes you realise just how senseless war is.'

### WHY VIRGIN?

**Sensible Software is a completely independent programming house. Normally, this can be difficult with developers struggling to find a publisher for each new game. However, Sensible produce some wonderful products so they are in the position of being able to pick and choose. They like to spread their licenses for games to various publishers and are currently working with Renegade as well as Virgin. So, why choose Virgin for *Cannon Fodder*?**

**"Why not?" said Jon. "It was quite simple really. We were looking for a publisher and Virgin seemed like a good bet. Although we hadn't really worked with them before everything's running smoothly. Tim Chaney, the UK boss, is quite straight to deal with. You know where you are with him."**

## BLOOD AND GUTS

The game plays in a similiar way to *Syndicate* with the player using a mouse to control a team of small soldiers on a variety of missions. There are 24 missions with a total of 72 phases to complete, each will have a different objective such as rescuing hostages, or seeking out and destroying specific targets. It's going to be a huge game and is set to appear on three disks, two of which will hold the data for the missions and six terrain types alone.

In order to add a bit of longevity into gameplay there's a small role playing element to the squad of soldiers with each one having his own set of statistics.

This means that some are better at shooting others better at movement, etc. These stats will improve with every promotion the squaddies get when they successfully complete a mission.

You can't seem to have a war »





The hardest thing about the jungle level is likely to be figuring out where the enemy is. Being so tiny and so well camouflaged is a definite plus for these soldiers.

PROFILES PROFILES PROFILES PROFILES PROFILES PROFILES PROFILES PROFILES

because they all work for the same boss. They'll only get good displays if their products live up to it. Most of the time they do.

## TOYING WITH SUCCESS

Perhaps the greatest example of the industry's confidence in Virgin is Hasbro's recent move to grab a 15% stake in VIE. The US toy giant is prepared to pay a staggering $25 million for such a tiny slice.

The deal will enable Virgin to finance future production in the cash intensive areas of console and CD development. More importantly, it's part of a longer term strategy on Virgin's part to keep them in the top five publishers. With the advent of CD we're seeing the possibility of entertainment products that utilise all the major formats, like high-quality sound, full motion video, and top-notch games.

When games publishers first cottoned on to CD it was hailed as a great leveller in that they would no longer be bound by tight programming constraints. In fact the opposite is true, to make a great game in the future companies are going to have development costs in excess of $1 million per game and that's before considering the set-up costs, like Silicon Graphics Workstations that cost £40,000 each. All this up-front spending is bound to squeeze the small players out – only financially secure corporations are going to have the muscle to make it. Sean believes that '...in five years time the only big players will be the ones that align themselves with major multi-national conglomerates. Corporations that have interests across all the entertainment fields, people like Sony, MCA Universal and Virgin.'

With that in mind $25 million seems like a small price to pay for what will eventually be a large part of the action!



Now, if you can figure out some way to get down that cliff face there's a neat helicopter waiting out there for you.

» these days without someone inventing new improved methods of killing each other. The same goes for *Cannon Fodder* with various weapons and vehicles lying around waiting for collection. As well as an unlimited supply of bullets, your guys will be able to use rockets, grenades, bazookas, jeeps, tanks and helicopters. Jools Sensible, the programmer, is particularly proud of some of the routines he's coded for the weapons. "When you use a homing missile launched from a 'copter it'll drop from underneath the craft and head for its target.

However, if there's any obstacles in the way it automatically charts a new route to avoid them. It can recognise fences, trees, buildings, tanks, etc. just like the cruise missiles used in the Gulf." To spice things up a bit the enemy also have all these weapons and to make matters worse there'll be better at using them! Things get even tougher when you encounter hostile civilians, such as the cowboys that shoot on sight or the jungle cannibals looking for lunch.

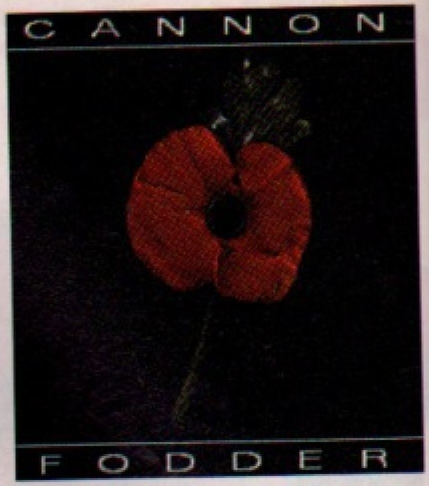


## TARGET ACQUIRED

*Cannon Fodder* is shaping up to be one helluva game. With the praises for *Sensible Soccer* still ringing in their ears (over 200,000 copies sold on floppy format alone!) they want to continue their success with this one.

For such a small team of only six guys they have certainly made their mark on the games programming world. This is amazing considering that a few short years ago they were on the brink of disaster following the collapse of Mirrorsoft.

"When they crashed they owed us over £90,000, which was about a whole year's income for us then. Fortunately, we managed to recover some by getting our game licenses back and reassigning them. It was a difficult time but things have worked out okay since then. In fact, we've gone from being horrifically overdrawn to the point where we turned over £500,000 last year," Jon Hare confided. Let's hope that with their deal with Virgin they continue to go from success to success.




The poppy is traditionally the sign of remembrance for our war dead. Sensible use it here to good effect.



The inter-level sequence looks like Silkworm, although it's just for show, but pretty all the same.




Death meets the coder, designer and hippy.




Some more dead people; isn't it sad?

PROFILES PROFILES PROFILES PROFILES PROFILES PROFILES PRO

## BUYING SOULS

Apart from their reputation within the industry, consumers have a warm feeling about Virgin. Sean attributes it to the time and money invested in development. Development is the most important part of the whole company.

"We're prepared to pay the going rate for hot properties. In addition, we're quite lucky in that we've have a fairly big internal development facility, another production office in Los Angeles, plus we own Westwood Studios, who've produced some incredible games. And in Europe we're working with excellent independent teams like Sensible, Probe and Revolution Software," he says.

Virgin have proved consistently that they're willing to put their money where their mouth is. They invested over $1 million in the recent *7th Guest* on CD-ROM.

It's easy to see that Virgin are going from strength to strength. With a combination of bright ideas, a sought-after name, and a secure financial foundation they are likely to remain one of the top games publishers for as long as there's a market for them to sell to.

## JIGSAW PUZZLE

**The Virgin Corporation is absolutely enormous and has interests in Airlines, Radio, Retail as well as games. So, how does Virgin Interactive Entertainment fit into all of this?**

**They're part of Virgin Communications which includes Virgin 1215 Radio, Virgin TV (post-production facilities) and Virgin Publishing (books). Other divisions include Voyager (travel and Virgin Atlantic Airlines) and Virgin Retail (megastores and game centres). Of course, it's all held together by Richard Branson himself.**



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The manual also explains hard disk installation and gives a full breakdown of *InterWord's* comprehensive menu system. It really is an invaluable aid to producing professional-looking letters and documents.

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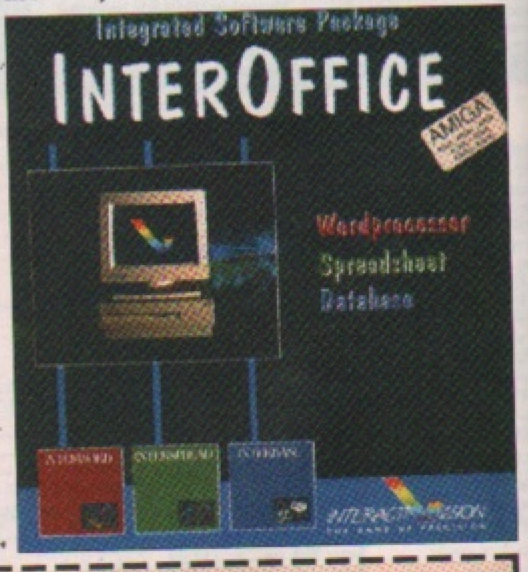
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# STAR TREK
## 25TH ANNIVERSARY

**Going boldly where no cliche has gone before, Tony Dillon warps onto the bridge of the Starship Enterprise for their latest intergalactic adventure.**

CU AMIGA SCREEN STAR

It looks like the Enterprise took a couple of wrong turnings before it hit the Amiga. It's been almost two years since the TV series celebrated its 25th anniversary, so this PC conversion is a little late in hitting our screens. Even worse, it's an A1200-only game that needs to be installed on a hard drive before you can start to boldly go where no man has gone before. That rather cuts down the potential sales of the product, but what's been sacrificed financially has been worthwhile, as the Amiga version is a faithful recreation of the PC original.

*Star Trek* is a sprawling masterpiece of game design, a product that follows the original TV show so closely that anyone who has ever watched an episode will feel immediately at home with this computer version. The camp atmosphere of the show, plus the cheap'n'cheerful humour that's prevailant throughout, has been successfully incorporated into the game, which should appeal to both Trekkies and adventure game players alike.

### ITS FIVE YEAR MISSION

If you haven't guessed, *Star Trek* the game is a graphic adventure in the *Monkey Island/Curse Of Enchantia* mould, with a bit of space combat thrown in for good measure. You control the crew of the USS Enterprise through seven daring missions, where they must use what little resources the designers have given them to solve some of the toughest puzzles I've seen (even if some of them are slightly illogical, captain!). None of the usual 'Get the green gem and give it to the pixie' puzzles here. This is a game, with phasers, Klingons and more deadly alien monsters than you could shake an Elasi pirate's stick at. »



On your best behaviour you slobs, it's the big cheese from Starfleet and he's not happy.



»



Mister Sulu has the important job of controlling deflector shields, and is also responsible for putting the Enterprise in orbit around planets – transporters only work when in orbit due to their limited range.



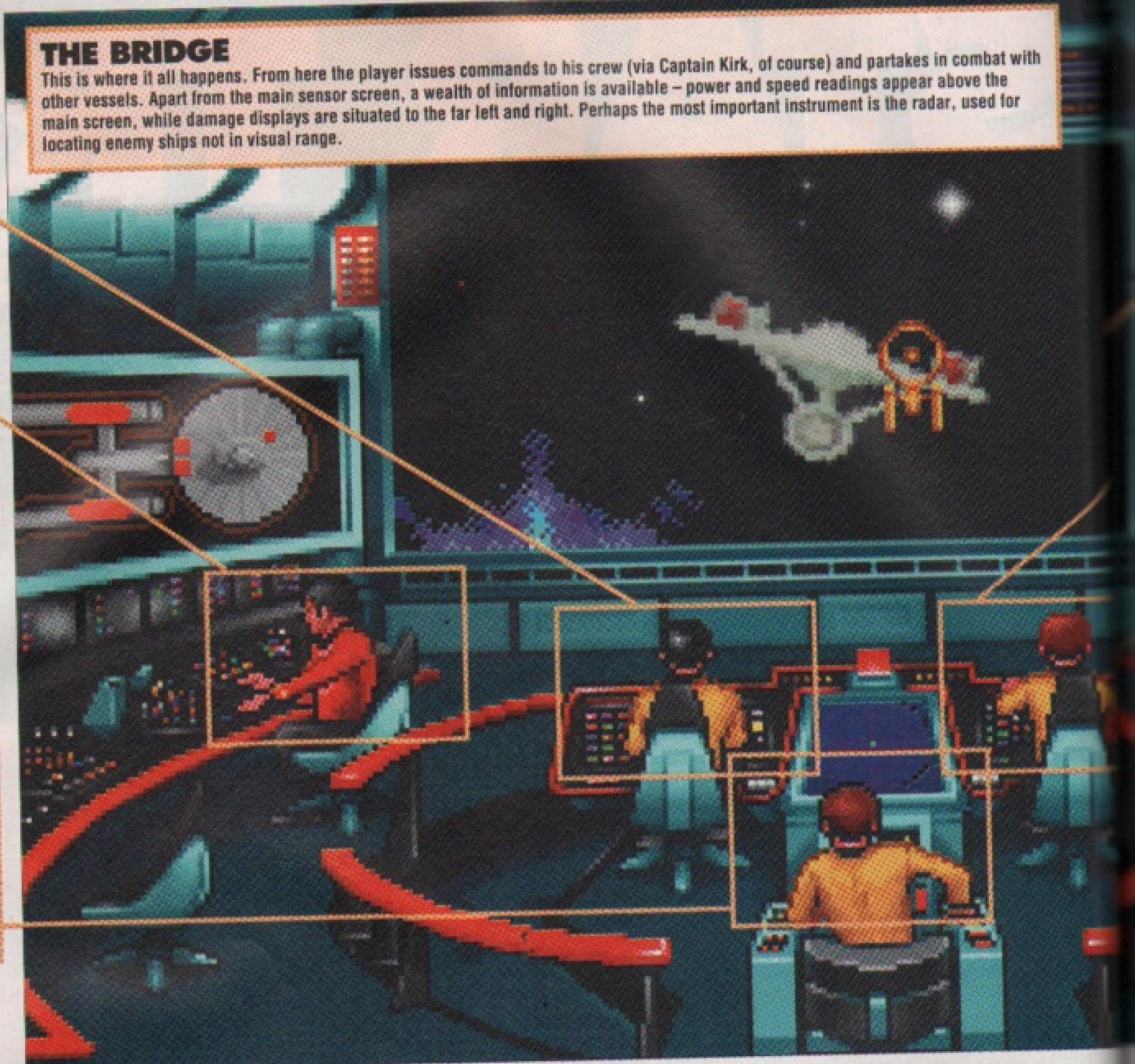
Scoty's job is to control damage to the Enterprise during combat. He automatically repairs systems as they are hit, although the player can select specific areas for priority repairs. There's also an emergency power reserve for use in times of crisis.



By selecting Kirk, the player can review the Captain's Log (showing reports on previous missions), beam down to planets and other ships and perhaps most importantly – save the game at any time.

## THE BRIDGE

This is where it all happens. From here the player issues commands to his crew (via Captain Kirk, of course) and partakes in combat with other vessels. Apart from the main sensor screen, a wealth of information is available – power and speed readings appear above the main screen, while damage displays are situated to the far left and right. Perhaps the most important instrument is the radar, used for locating enemy ships not in visual range.



### STAR FACTS

Leonard McCoy may have been one of Starfleet's finest physicians, but he wasn't exactly equipped with state-of-the-art medical equipment. To save on costs, the show's special effects department had to utilise everyday objects and tart them up to look 'futuristic'. Take this with a pinch of salt if you want, but a couple of his instruments were salt and pepper pots – and it's pretty obvious too!

» Each mission takes the form of a separate episode, mirroring the structure of the original TV show. In fact, the game is so authentic that each adventure opens with the title music and credits, a fly past by the Enterprise and James Tiberius Kirk dictating his Captain's Log. Each installment is also given an authentic-sounding title, too, such as 'Demon World' or 'Love's Labor Jeopardised'. Like all classic *Star Trek* titles, it gives you a little clue as to what the episode is about, without actually giving too much away.




Oh god, not him again! Quick Sulu, man the photon torpedoes and lets give him what for, the miserable old far[*Snip - Ed*].

## TO SEEK OUT NEW WORLDS

Each episode follows the same basic formula. You begin in space, talking about a previous encounter or participating in a deadly battle against Klingons, Romulans or Elasi pirates, when a message comes through from Starfleet informing you of an intergalactic incident and ordering you to travel to a particular location to find out what the hell's going on. A quick word with Mr. Chekov and you're there, from which point you have to beam down to the planet and figure out what's going on. After completing a sequence of puzzles, set over a number of screens, you are informed that you have finished the mission, and it's time to beam back up to the Enterprise for a bit of a chat and a last dose of deadpan humour.

Let's take a look at the first mission, 'Demon World', to see how it all fits together. It begins with some 3D combat in which the Enterprise is put through its paces. The action is viewed through the Enterprise's viewscreen, roughly a third of the play area. Despite the small area it's still highly effective, with meteorites and stars whizzing about, which helps give a real sense of speed as the Enterprise kicks in its warp engines. Once you've engaged an enemy and powered up your weapons system, the mouse buttons fire your photon torpedoes or phasers. Although photon torpedoes are more effective, they take a longer time to recharge than your phasers, so use them sparingly. To get in a

### STAR FACTS

With both *Star Trek: The Next Generation* and *Star Trek: Deep Space Nine* running on American TV, and the original *Star Trek* still in syndication, the show has become a major cultural phenomenon. It's possible to watch Star Trek in almost any language in almost any country in the world. You can buy stick-on Spock ears, costumes from the show, stationary, trading cards, comic books, the entire series on video, t-shirts, model kits, phasers and even battery-powered Tribbles! It's also become THE major money spinner for Paramount – in effect, a license to print money.





Chekov is a navigation and weapons man. The Enterprise travels by means of the player selecting a planet from his galactic map. It's also his job to arm phasers and torpedoes prior to combat.



Although he has no specific task, Spock can give Kirk expert advice on a particular subject or situation at all times. His logical insight can be invaluable. The player can also access Spock's computer directly, for raw data on a chosen topic.



Uhura handles communication to and from the Enterprise – all incoming messages go through her. She can hail ships and planets, as well as transmit messages and other data.

## THE LANDING PARTY

When transporting to a planet or other starship, Captain Kirk will lead a landing party of himself, Mr. Spock, Dr. McCoy and a security officer. Be warned, situations can be dangerous. If Kirk, Spock or McCoy is killed by your actions, the game is over. Losing the security officer does not lose the game, however, and you can continue the mission. Constantly losing security officers is frowned on by Star Fleet Command!

Moving about is simply a case of pointing to the area of the floor that you want Captain Kirk to go to with the cursor and clicking the mouse. He will automatically go to the chosen spot. You only control Captain Kirk's movements directly, the other members of the landing party will move when circumstances require it.

By pressing the right mouse button or space bar, you can call up the Command Interface. From here you can talk to the other characters in the game. You may be given several options (a la Monkey Island), so be careful which ones you choose. What you say can and will affect the response you will receive from the person you're questioning. Don't forget to talk to Spock, McCoy and even the thicko security officer – they may have valuable advice to



good shot, it's best to match the speed of your adversary and fire slightly ahead of their predicted flight path. It's a tricky manoeuvre to pull off, but once you've mastered it you'll be able to blast the Klingon scum (or whoever) into so much space dust.

Luckily, the first mission only involves some mock combat, and when this is over Kirk receives a message from Starfleet informing him of trouble on Pollux V, where local inhabitants have sighted what looks like Demons from the Old Testament. Arriving at Pollux, the crew receive instructions to beam down from the small group of scientist monks who live there, so Kirk, Spock, McCoy and some poor sap in a red uniform set off to discover more. They arrive at a small collection of huts near a mountain where, the monks claim, the demons live. A man who is dying of a rare infection claims there's even a gate to hell located in the mountain. McCoy knows what's needed to cure the infection, but doesn't have the correct medicine. One of the monks explains that he can synthesise the drug using berries located near the entrance to a cave, but refuses to go there because of the demons. Kirk agrees to go, but finds his way barred by Klingons. Dispatching them with a bit of phaser play, he finds that they aren't real at all, but merely cleverly constructed robots. He takes a hand which has fallen in the fight, along with the berries and returns to the camp. The drug is created and administered, and Spock sets to work fixing the hand. The team return to the mountain to work out what's going on and... well, to cut a long story short, there's an ancient race locked beneath the mountain, Kirk frees them and everyone lives happily ever after. Until next time...

## STAR FACTS

Star Trek's creator, Gene Roddenberry, insisted that the show should be based on scientific facts and was as accurate as possible. Towards this aim, a number of military, scientific and medical institutions were asked to contribute ideas to the show and approve those already adopted. Although the wobbly cardboard sets made some ideas seem a little implausible, nearly all the scientific instruments and technologies on display could one day become a reality. So detailed were the plans for the Enterprise that the ship's landing deck blueprints were evaluated by the US Navy and hospital authorities showed a keen intest in the diagnostic beds in the ship's sick bay.

## YES, WE GET THE MESSAGE

So what sets this apart from other graphic adventures? In a nutshell, the amount of atmososphere and detail that's gone into the game. Every single member of the crew talks and acts exactly how you would expect them too, which goes a long way to shaping the puzzles.

You can't do things out of character, so you can't ask Spock to administer medicine any mdre than Kirk would kill unnecessarily. Probably where the characterisation comes into play most is in conversation. Everyone has something to say at any given moment, and there are some real gems to be found. Try to use your phaser at the wrong moment, and Bones will chime in with 'Dammit Jim, it's a phaser, not a flashlight!'. Spock and McCoy argue almost constantly, never missing a chance to rub each other up the wrong way, and Kirk, as always, is the easy going mediator who uses his diplomacy skills to smooth things over. Sometimes.

The entire game is icon-based, controlled with surprisingly few icons on the bridge and even less when controlling the landing party. On the planet surface, you can 'take', 'talk' and 'use', with use being the most important icon as it gives access to Spock's Tricorder and McCoy's medical bag. Each item has to be used on something, by clicking on the item you want to utilise and then the area of screen to use it on, and you are told via a text box of the result. Due to the various ways in which a mission can »



# ...WHERE EVERYONE HAS BEEN BEFORE!



Over the years, there have been numerous attempts at Star Trek games, very few of them official in any way. Here's a quick guide to the three main ones that have appeared.

### *Star Trek – The Grid Game*

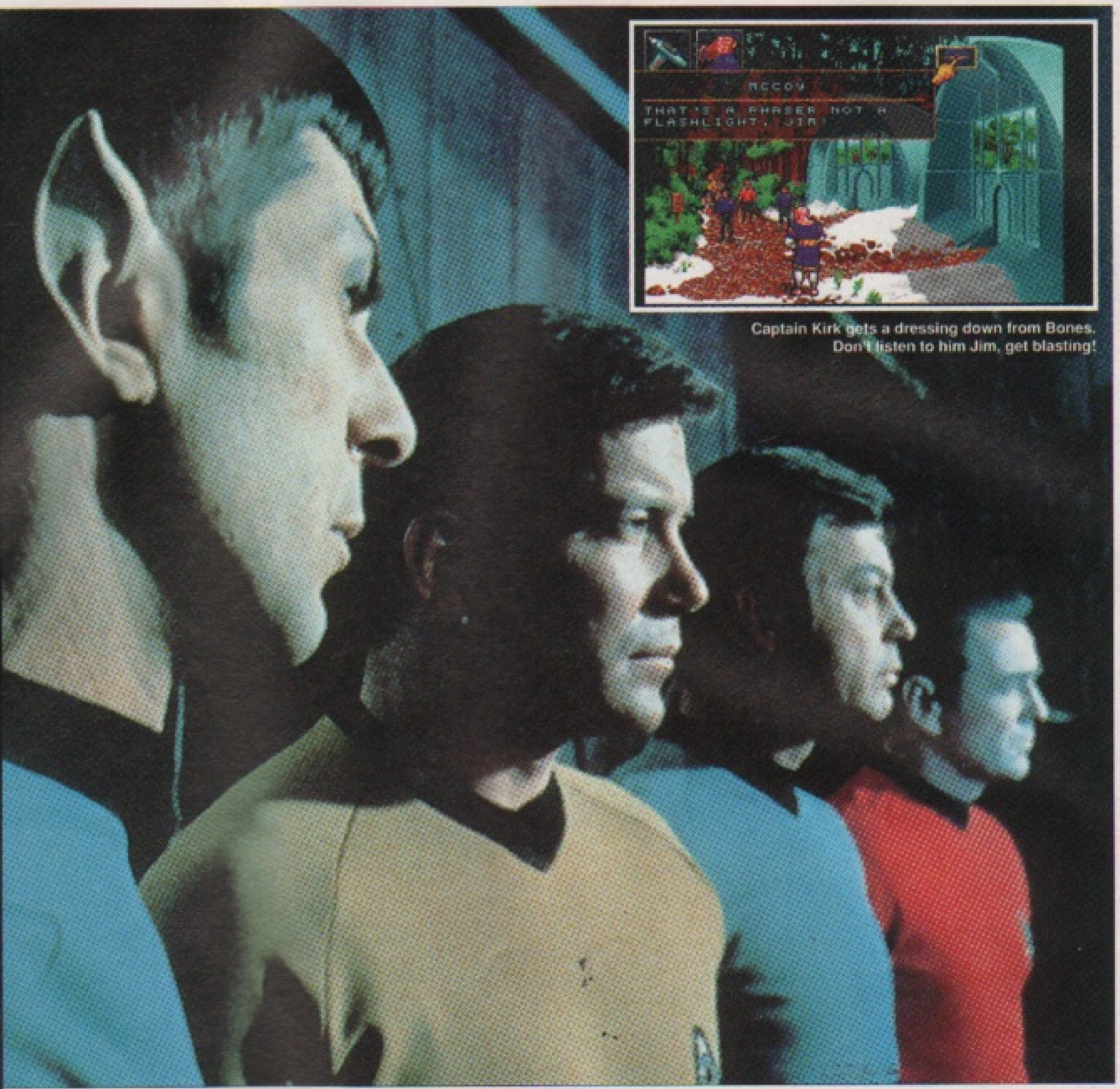
Easily the most popular, and one that has appeared in a million different forms all over the PD market. Played like a wargame, this dice and hexagons strategy title is written in BASIC and has little to do with the TV show with the possible exception that the main sprite looks a bit like the Enterprise.

### *Star Trek – The Action Game*

If you haven't seen this yet, don't bother. An impressively detailed intro screen gives way to the worst kind of blaster. Written in the Shoot Em Up Construction Kit, it's poorly designed and unplayable. Again, the main sprite looks vaguely like the Enterprise.

### *Star Trek – The Firebird Game*

Firebird Software, then an arm of Telecomsoft, were pleased as punch when they snapped up the rights to this little darling of a game. Plans were drawn up, and journalists across the world began to dribble in anticipation of the wonders that were to come. And they waited. And they waited some more. The actual reason for the game being more than two years late are lost in the mists of time, but the wait was certainly not worth while.




Captain Kirk gets a dressing down from Bones. Don't listen to him Jim, get blasting!




Spock gets technical and the rest of the crew fall asleep standing up.

be completed, you can use anything on anything, but the most important areas of the screen cause a red line to appear around the mouse pointer, just to push you in the right direction. You won't always get a result, but when you do, you can bet it's significant.

The actual design of the game is possibly the best thing Interplay have ever come up with, and if you've ever played *Wasteland*, you'll know what kind of competition it's up against. A single seven Megabyte file supplies all the data for the game, which includes every single conversation and more split game paths than there are split peas in Tesco. Each mission has one deed that needs to be performed to complete it, but there are always a variety of ways to get to that deed. Obviously, if you take the wrong one, or at least a less than perfect one, your mission score will be low, so you should always be looking for the right way, but it's comforting to know that there are very few mistakes you can make.

## STAR FACTS

**Before the original cast went (B)oldly into movie production, they were actually signed up to work on a new series of the TV show. On 17th June 1977, Gene Roddenberry announced that contracts had been signed and initial scripts approved. Called *Star Trek: Phase Two*, the project was abandoned just before filming was due to commence as Paramount had a change of heart and decided to go ahead with the movie option instead. Many of the completed screen plays have since resurfaced in *Star Trek: The Next Generation*, but it's interesting to think about what might have been as Kirk and Spock went boldly once again...**

## FUNNY LOOKING ALIENS

Even with the amazing game design, the secret of the PC's success was the graphics, and on AGA machines the visuals are identical. Huge, realistic spacecraft drift through the cosmos, all drawn in ray-traced positions and rotated a la *Wing Commander* – no polygons here – which makes you feel like you're really in control of the Enterprise. But that's nothing when you compare it to the main sprite graphics of the landing party. OK, so they might be a little chunky, but there's no denying how recognisable everything is. You can always spot the one who'll get killed first because he's in red. Spock's ears are always in shot, and Kirk even has the right haircut, complete with ridiculous sideburns. There are literally hundreds of frames of animation in the game, which is why you're going to need a hard drive! Sure, there are a lot of people who will complain about it not running on non-AGA machines, and the fact that you can't run it from floppy, but when you consider that there's over thirteen Megabytes of decompressed data to play with, you'll understand why.

The big question is, of course,

»



## JUDGEMENT DAY

At the end of each episode, Starfleet Command will contact you aboard the Enterprise and congratulate you on your success. They will also give you a percentage rating of how well you have done on the mission. Should you get a high score, you'll find yourself granted commendation points. These generally improve the skills of your crew, and will make the game that little bit harder on the later scenarios. Next time you encounter that Romulan cruiser you'll be able to manoeuvre the Enterprise that little bit better and have an improved aiming system!

Captain Kirk confronts one of the original Cadbury's Smash robots (above) and (left) after they've sampled the self-same delights (only kidding Cadbury's, we love you really).

## STAR FACTS

The original Star Trek show ran from 1966-69. In all, 79 episodes were produced and some of the biggest names in science fiction wrote for the show. After the second season rumours started to spread that the series was about to be cancelled and a write-in campaign began. In three months, more than 200,000 letters were received by the show's TV station, NBC, who had to employ dozens of extra people to deal with deluge of mail. Newspapers quickly picked up on the story, students held demos and protest marches, and NBC's corporate headquarters were picketed. Finally, bowing to such unrelenting pressure, NBC made an on-air announcement that they were commissioning another series.

» what's it like to play? I wasn't totally at ease with the icon-drive interface at first, simply because there just didn't seem enough options, but once you get into the swing of things you'll realise that those on offer are more than adequate for the job. These are some of the Enterprise's most taxing missions yet. The simple controls merely mean that it's very easy to get into the game - even more so if you are familiar with the characters. Although the action jumps and hangs occasionally, as the program loads in the files it needs, this doesn't detract from the game at all. The verbal sparring between Spock and McCoy, the detailed graphics and sampled sound effects are complemented by an excellent series of puzzles and a script that is faithful to the original shows in almost every respect. Although the puzzles aren't as complex as those you'd find in a Lucasfilm game such as *Monkey Island 2*, they're still quite taxing and will take you a while to solve.

Seven missions might not seem a great deal, but they are fairly complex - too complex sometimes, so you might find yourself coming up against a brick wall and not being able to progress further. The seven missions must be completed in order, so it's not possible to skip to another one should you get stuck. The 3D space combat is also rather weak – yes it does test your reflexes later on but it does feel as if it was included just to pad out the game. And what happens if you don't particularly like this style of gameplay, as I suspect many adventurers will? You still have to complete it before you can beam down to the planet and start the adventure proper.

Despite these gripes, this is one of the best licensed games I've ever played. Let's hope it lives long and prospers. CU




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| RELEASE DATE: | OCTOBER 1993 |
| GENRE: | ADVENTURE |
| TEAM: | IN HOUSE |
| CONTROLS: | MOUSE/ KEYBOARD |
| NUMBER OF DISKS: | 8 |
| NUMBER OF PLAYERS: | 1 |
| HARD DISK INSTALLABLE: | YES |
| MEMORY: | 2Mb |

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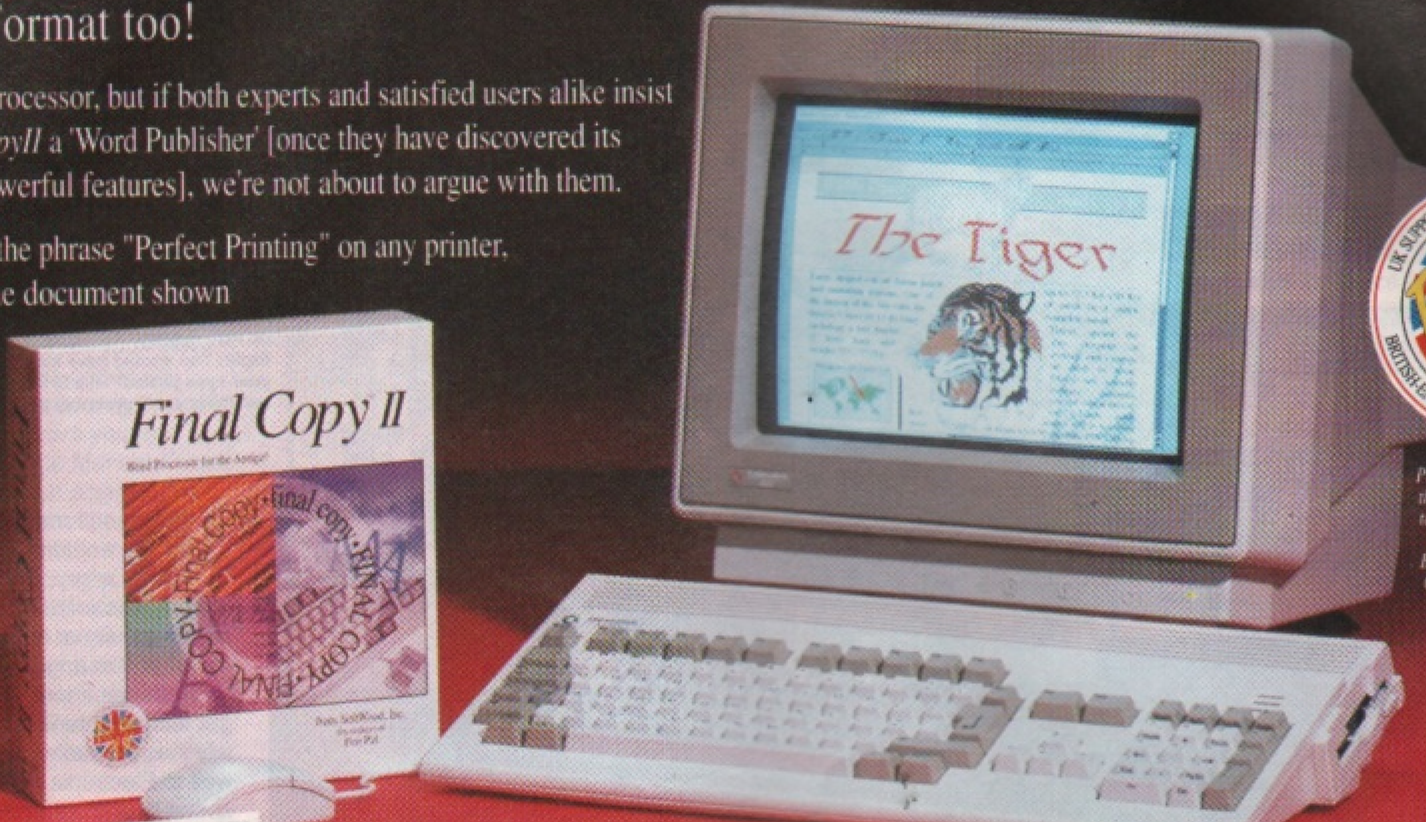

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# SPACE HULK

**If you're in trouble. If nobody else can help and if you can get him out of bed, maybe you could hire Tony Dillon.**

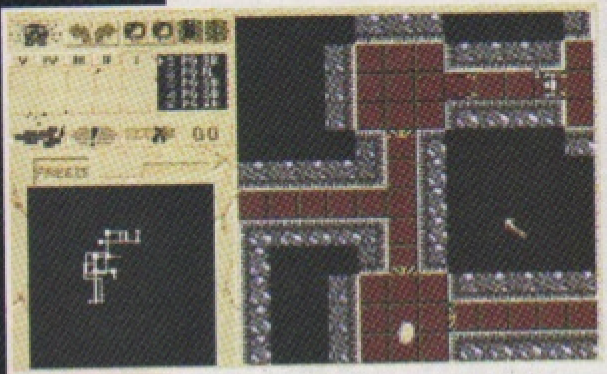
CU AMIGA SCREEN STAR



Left: The start of the mission and all's well. Not for long though. these Genestealers have a tendency of sneaking up very quickly.
Right: You should have kept your eyes peeled! This is the last thing you'll probably see.

'Don't make me angry. You wouldn't like me when I'm angry.' OK, so it isn't that kind of *Space Hulk*, but the fact still remains that not many people do like me when I'm angry. I shout a lot and throw things about. All in all, I can get fairly frightening and imposing, which is probably why I relate so well to Electronic Art's stunning new space-bound escapade.

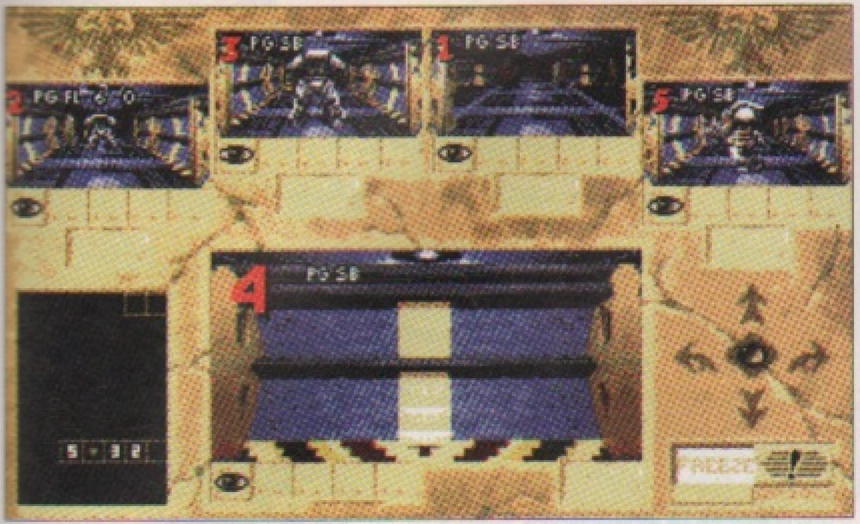




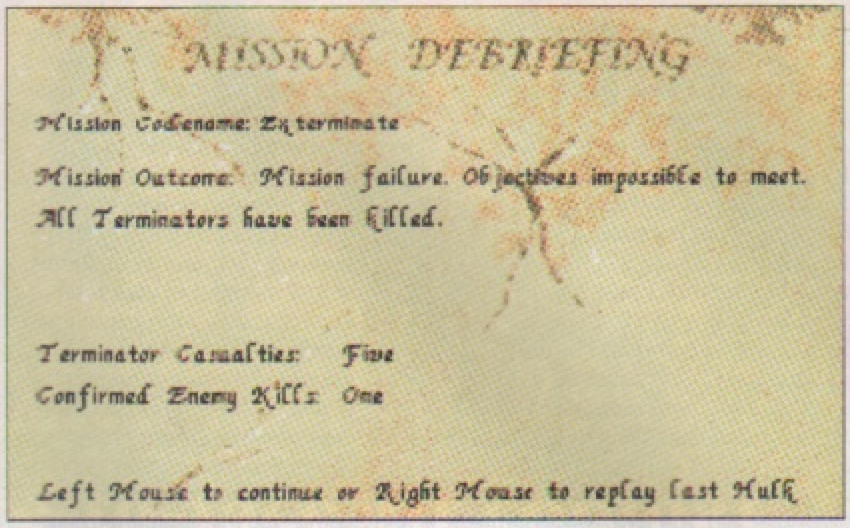
In map mode you can see the Genestealers approaching. It's usually too late, though.

## WATCH OUT!

At first glance, five characters seems a lot to be controlling on your own, particularly in an environment where reflexes are everything. The idea of watching everyone's back at once makes everything far too daunting to be playable, so those clever people at EA came up with *Overwatch* – a limited form of artificial intelligence. With *Overwatch* on, any troops who are moving around under orders rather than direct control will blast doors open, as well as open fire on any Genestealers approaching, leaving you free to, well, watch them. However, they don't fire as quickly or as accurately as when you are directly controlling them, so when you hear the sound of gunplay, quickly change to the character firing and take over. It's the only way. You can turn off the *Overwatch* if you want, but who would want to?



Doors can be opened by either shooting, or by just walking up and knocking.




Here is your mission debriefing in all its glory.

## REMEMBER, REMEMBER...

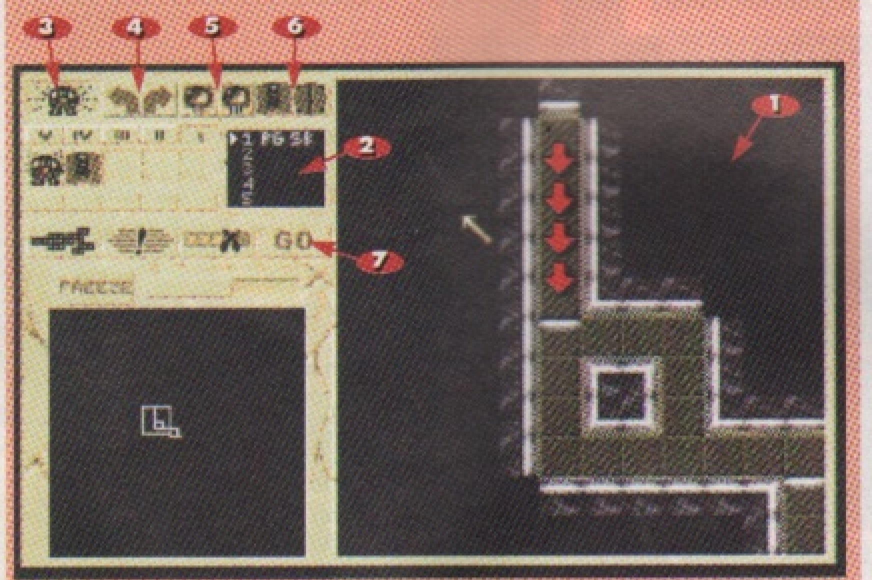
Remember Gremlin's *Space Crusade*? Of course you do and if you can remember that, you'll also remember that it was based on Games Workshop's boardgame of the same name, where you took a small group of Space Marines™ and walked them through gigantic alien spacecraft, completing missions and blowing away aliens. It's all good fun, and an excellent exercise in low-scale strategy. *Space Hulk* comes from the same series of games, but no amount of *Space Crusade*, not even the extra missions disk could have prepared me for this.



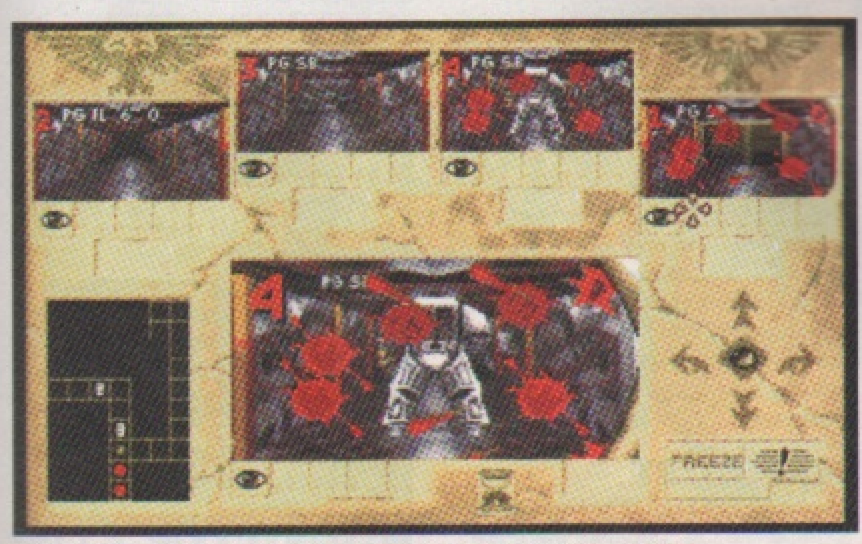
The game is set far into the future and tells the tale of a collection of warriors called the Terminators, who have been specially bred and equipped to deal with a new form of alien. Forget *Space Crusade*'s Soul Suckers and Dreadnaughts – they're eight-stone wimps compared to Genestealers. These things are so tough, that the first time a platoon of Space Marines bumped into them, they were wiped out completely. And the second. And the third. Do you get my drift?

In this future the only way to travel interstellar space is to enter something called The Warp. This parallel universe compresses distances but is extremely dangerous to travel in. The main reason being that it's full of Genestealers and other more unspeakably horrific malevolent alien entities. Sometimes ships are damaged or lost and become infested with aliens. When the ships jump back into normal space they're carrying a cargo of vicious killer aliens just itching to decimate the nearest planet. I told you they were mean. That's why you get to control up to 10 Terminators over dozens of missions against these things. Well, everyone likes a challenge.

## EASIER THAN EASY AMOS



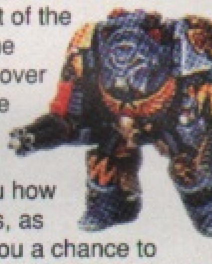

This is the planning screen where most of the strategy takes place. It might look a little confusing at the moment, but using it is easier than loading a PC game. The overhead map (1) lets you look around the entire map, with all located Genestealers shown. You can issue up to five orders at once to each troop, which are listed in the orders box (2) with all commands taken from the icons at the top of the screen (3-6). In case you're wondering, the orders available are (3) Move, (4) Turn left/right, (5) Fire weapon 1/2, (6) Open/Close door. When all commands have been issued, clicking on the start icon (7) gets everything rolling. Easy? Well we think so.



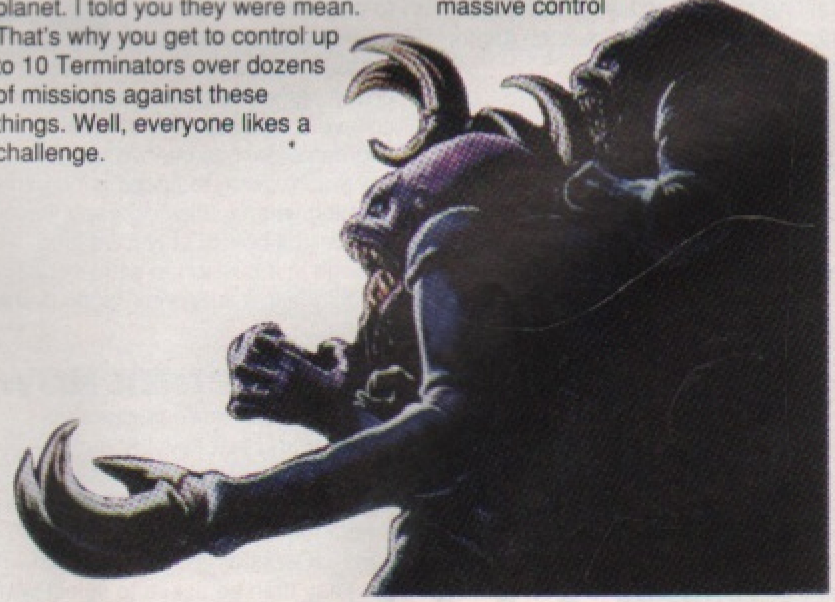
Those blobs or flecks of blood mean that you're actually being hit from behind. t's really disgusting isn't it?

## DISMEMBER, DISMEMBER

There's a lot to *Space Hulk*, most of it contained in the huge number of missions, ranging from just getting one Terminator from one side of a map to the other, right through to wiping out dozens of aliens and destroying most of the Hulk at the same time. I counted over 50, including the extensive tutorial missions, which show you how the game works, as well as giving you a chance to develop your strategies and playing style. It's a very difficult game to describe in summary. In a way, it's a mix of every game genre there is, from arcade action to adventure to strategy. It might seem a little difficult to envisage a game like that, so stick with me and I'll explain.



First off, you have the arcade element of the game. If I did a Mystic Meg and asked you to close your eyes and then pick a screen shot on this page that 'leapt out at you', chances are you'd go for one of the big ones with the huge slobbering alien crawling all over it. This is the arcade section of the game. Each mission is laid out in a similar style to *Space Crusade*, with large corridors leading in and out of massive control



» rooms, with one major difference. It's all viewed in moving first-person perspective, in real time. None of the nancy 'turns' that most people seem to go for. Next to the large picture in the middle of the screen shot, you'll spot four arrows and a circle. These are your controls, and with these you have to move around the complex blowing away all the aliens that come at you. In a way, this game owes a lot to the old license of the movie *Aliens*. Not the crap *Aliens US*, that had a couple of nice graphics but little in the way of suspense. No, the UK *Aliens* game, where you never quite knew where the aliens were, and jumped out of your skin as soon as you saw one coming. Picture *Dungeon Master* and



and that's something that'll take you quite a long time, you can try your hand at a real mission. This 21-mission adventure takes you all the way through a war against the enemy, from landing on the Hulk to eventually destroying one of the toughest enemies seen on a computer game. For each mission a member of your team survives, they earn experience points, which obviously improves their general combat skills. There's no point going into one of the later battles with an inexperienced team, so the pressure to keep the same team going adds some real involvement to the game.

Finally, and most importantly, there's strategy, and this is where everything ties together. To all

## SHOW YOUR BRIEFS

**Every one of the 51 listed missions in the game is extensively explained and briefed, first with an overview of why the mission is taking place, and then this guy explaining the rest in detail. You are told at which point your troops are deployed, where they have to get to, and the likely entrance points of Genestealers. It might not tell you everything, but you get enough information to begin planning your strategy long before you've loaded the actual mission. If that isn't enough, there are more details in the enclosed mission booklet, plus hints on the best ways to play the mission. How much more do you need?**





With the planning screen, moving your characters about couldn't be much easier.

throw in a bit of *Jacob's Ladder*, and you should get some idea of exactly what kind of atmosphere this game piles on.

## FIND THE MAGIC TREE

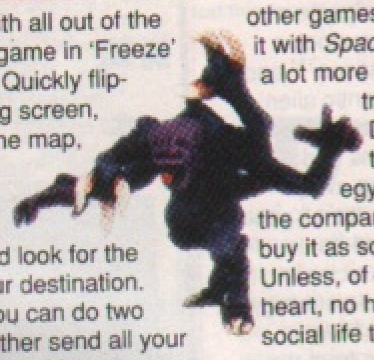
Secondly, there's the adventure side of the game. As I've already said, there are loads of missions for you to play, and these are broken down into definite groups. Some are training missions, some are the original missions that came with the boardgame, some are new missions and some belong to the Deathwing Campaign. Once you have mastered the game,

intents and purposes, *Space Hulk* is a strategy game, but like no other. It proves the maxim that no battle was ever won by plans, and no war was ever won by action alone. OK, so it isn't a well known maxim, but that's how it goes, word for word. I should know, I just made it up. With a separate planning screen, you can issue orders to each of your troops to go to certain locations and do specific things. Were this less of a game, you would be able to play the entire game from this screen, but the problem is that this screen just doesn't give you the chance to exercise your reflexes. The arcade segments do, and believe me when I say you're going to spend a long time learning when to flick between the two, or just how to stay alive long enough in a mission to actively use both. This is a very, very tough game to beat.



## ALL TOGETHER NOW

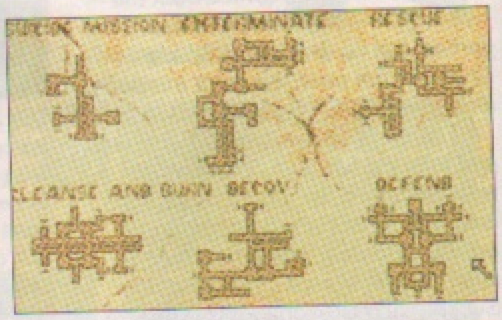
So, let's put all three segments together and see how the game works. At the start of the mission, you are given your basic brief, and then a more detailed one (see panel). Depending on the mission, you may then be asked to select your team and arms. With all out of the way, you start the game in 'Freeze' Mode (see panel). Quickly flipping to the planning screen, you scan around the map, checking the locations of the Genestealers in relation to you, and look for the safest route to your destination. From this point, you can do two things. You can either send all your troops to strategic positions – covering likely enemy entrances for example - or you can go into action mode and move the troops about manually, picking off aliens as you come across them. Although the second system is more satisfying initially, the first is far more rewarding, particularly when by some fluke you manage to corner a dozen Genestealers and pick them off with ease, if only so that you can tell everyone you did it intentionally. Moving troops in the planning screen is easier, and allows you more room for clever tactics, but that doesn't mean you can sit back and watch everything go to plan!



The presentation on *Space Hulk* is amazing. Visually, it's superb, with the dimly-lit corridors making the more claustrophobic among us itch. Sure, there's a scanner there for us to check the location of any aliens, but that doesn't stop you jumping when one rushes across one of your troop's field of vision. Everything is laid out in a sensible way, and actually controlling the game is a doddle right from the first time you play. Just as well really, as it takes so long to actually settle down and start playing it properly.

## SOB STORY

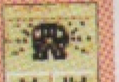
It is very hard to sit down and review a game like this, because there are so few points of comparison with other games. I could try to compare it with *Space Crusade*, but this has a lot more action than that. I could try and compare it to Dungeon Master, but there's much more strategy. All I can say is hang the comparisons, and rush out to buy it as soon as it hits the shelves. Unless, of course, you have a weak heart, no head for fear or value your social life too much. CU




## BRRRR!



**You may have noticed the 'Freeze' button on some of the screenshots here. This, as you can no doubt guess, freezes the action and lets you think about your next move. It isn't, however, a pause button. Yes, it has all the properties of a pause button, in so far as it completely stops game time, but the big difference is that is has a limited use. Immediately below the button is a small bar which shows you how much 'Freeze Time' you have, and when the game is frozen, this bar ticks down quickly. Thankfully you can recharge it when playing in real time.**
**Even having a breather has its pressures in this game!**



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| GENRE: | STRATEGY |
| TEAM: | EA |
| CONTROLS: | MOUSE |
| NUMBER OF DISKS: | 3 |
| NUMBER OF PLAYERS: | 1 |
| HARD DISK INSTALLABLE: | YES |
| MEMORY: | 1Mb |

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And they're off! [*Hang on – isn't that horse racing? Ed.*] Anyway, wait for the green light and then smash your way through the opposition.

# F17 CHALLENGE

## TEAM 17 OUT NOW £12.99

There are few decent racing games available on the Amiga. The difficulty most programmers face is finding a fine balance between realism and playability. Either you get a game bristling with detail which runs very slowly or a super fast scroller almost devoid of any recognisable features. Against this difficult background, Team 17 decided to release *F17 Challenge*, their second made-for-budget product.




Unfortunately, one collision too many and it's off to the pits for you. Cars with higher damage ratings fare less well in the race.

The game centres around the F17 World Championship and is set over 16 circuits. You are up against 21 computer-controlled drivers, all eager for a slice of glory. Once you have chosen one of four cars available – each with their own unique characteristics – you can then opt to practice on some fictitious circuit to hone your driving skills or race on an actual track to get the hang of the bends. Of course, if your name is Nigel Mansell, you could simply choose to plunge wheels first into the excitement of the World Championship itself.

The car choice may not seem too important at first but once you've chosen a car you're stuck with it for the duration. This can cause problems when the weather changes. In actual Grand Prix racing when it takes a turn for the worse the mechanics simply whack on a set of slick tyres designed for driving in the rain. Here, you're stuck with whatever the car has already. So, if you end up competing in the rain, you may wish you'd chosen the one with better handling rather than the speed demon model.

The graphics, though fairly basic, have the usual polish that we've come to expect from Team 17. There are some nice touches like the sparks that fly out from under the car as it bottoms out at the base of a dip. The animated mechanics in the pits are good as well. The in-game soundtrack is racy and adds a bit of pace to the visuals.

The whole thing zooms along at a cracking pace and, despite the lack of great detail, you'll soon find yourself gripped by the action. If you remember that *F17* was designed specifically as a budget game there's little to fault it. In fact, I'd say that it's the best budget title I've seen in some time. However, compared to other racing sims now available on budget, it does seem a trifle shallow. It's initially addictive but it lacks any real long term appeal.

**79%**

***Jon Sloan***

When you take part in a race you're given the choice of either qualifying or not. It's advisable to go for the qualifying race, otherwise you'll end up at the rear of the field when the real race starts.



# GEAR WORKS

## SOFTWARE BUSINESS OUT END SEPT £19.99

Puzzle games come and go, with few making a lasting impression. Fewer still reach the exalted heights achieved by that classic, *Lemmings*. *Gear Works* is unlikely ever to be referred to in the same sentence as that game but that doesn't mean it's not worth a quick five minutes.

The aim of the game is to convert 12 Wonders of the World into massive clocks. Quite why you're supposed to do this isn't made clear but who cares?

Anyway, you build the inner mechanisms of the clocks by placing various gear wheels in a linked chain from the left hand side of the screen to the right. The gears themselves come in three sizes and are handed out in a random fashion.

The trick is to place them all in a pattern that'll enable the red one on the left to turn the one(s) on the far right. It sounds easy enough till you realise that you've got to hang them on one of the pegs that cover the backdrop. AND that the pegs' patterns become increasingly difficult the higher the level. Have you got that? Yes, Good.

Well, if that wasn't hard enough, you're also up against a timer which speeds up with every linked gear you place. To really add suspense there's even a couple of gremlins which delight in jumping around the screen rusting the gears and breaking off the pegs.

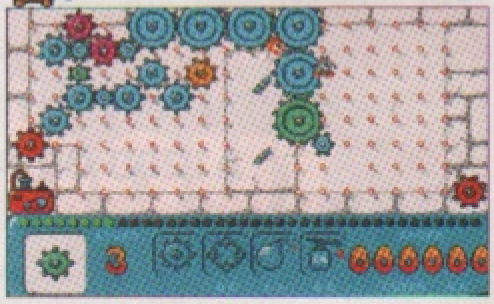
Fortunately, there's a bank of icons below the play area where you can change your cursor to a gunsight to blow them away.

Alternatively, there's an oil can to free rusted gears and a bomb to blow up badly placed ones. Supplies are limited though and can only be increased when you've accumulated enough points to allow you to play on an intra-level slot machine.

Initially, I wasn't too impressed by *Gear Works*. The graphics are not great and the in-game tune grates on the nerves after a while (you can turn it off). The difficulty curve seemed far too low at first but I soon realised that the later levels are much tougher. You actually have to plan ahead and really study the peg layout instead of just linking one gear after another.




This one takes a bit of figuring out. The pattern basically follows a sinuous curve, so save your big gears for the top and bottom connections.



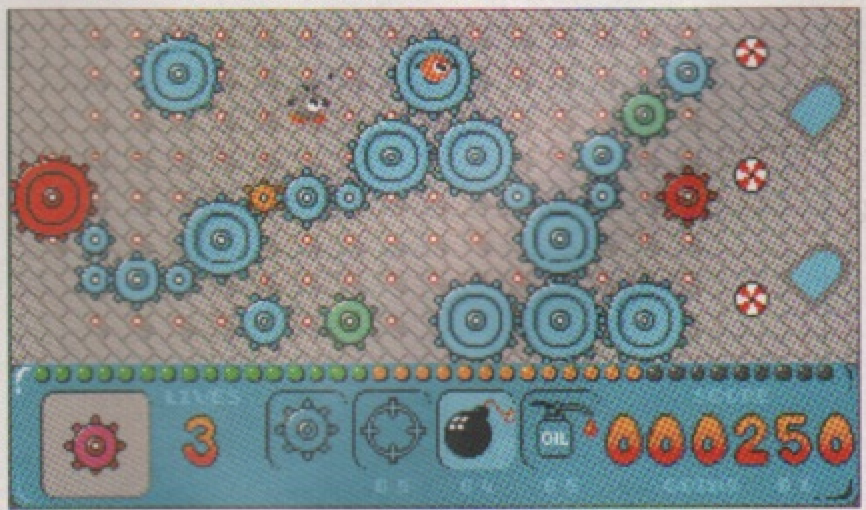

Level two and things are beginning to get tough. A bit of judicious blowing up is called for here after my gear chain has gone awry.

The game's far from being a classic and is unlikely to keep dragging you back session after session.

It may be overpriced at £19.99 but, if your pocket can stretch that far, give it a try.

***Jon Sloan***

**71%**




On level one things aren't incredibly difficult. The pegs cover most of the backdrop so the route is up to you.

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# Are the prices of Amiga products about to change

# ?

# HIRED GUNS

AMIGA SCREEN STAR

**From *Lemmings* to *Walker*, super coders DMA Design can't put a foot wrong. Closet chiropodist, Jon Sloan, gives their latest game a pedicure.**

Most role-playing games set their storylines and gameplay in some mediaeval fantasy Kingdom where Princess Flatulence has been kidnapped by an evil wizard with a pointy hat. That's all well and good but after you've rescued your 20th damsel in distress, things can get a bit samey. So, where do gamers go if they want a similar game with a radically different plot?

The answer lies in Scotland, specifically in the studios of DMA Design. Some of this decade's most explosive games have appeared from their fertile brains and this latest effort looks like easily matching their established high standards.

*Hired Guns* puts you, and up to three mates, in control of four battle-hardened mercenaries dropped onto a remote planet populated only by psychotic mutant creatures. The planet was in the process of being terraformed when an automated production plant went haywire and started releasing mutant organisms into the environment. These creatures are now threatening life, love and the American Way and you've been hired by The Company to go in and sort 'em out – in 13 days or less. Well, it makes a change from roaming dragons and wicked witches!




Even the campaign map has got a fractal backdrop and its own accompanying music, which is beyond compare.

## CONTROL FANTASIES

DMA have come up with a unique four-way split screen which allows you independent control of all four characters. This is something RPGers have been screaming for – the chance to use some detailed strategies instead of the usual 'Let's all walk down this dark corridor together even though there may be a huge hairy monster at the end of it', favoured by other adventure games. You can select this option if you want to by highlighting one player as the leader so that all the others will automatically follow him.

This control interface must be one of the easiest I've ever come across. It's very intuitive and can be learnt without the need to refer to the manual. At times, though, it can be a little fiddly, especially when you're under attack. In that situation it's very easy to shoot another team member when all you want to do is run away. I've lost count of the number of times I've loosed off a few shots whilst trying to step forward just because my cursor wasn't over the correct hot spot.

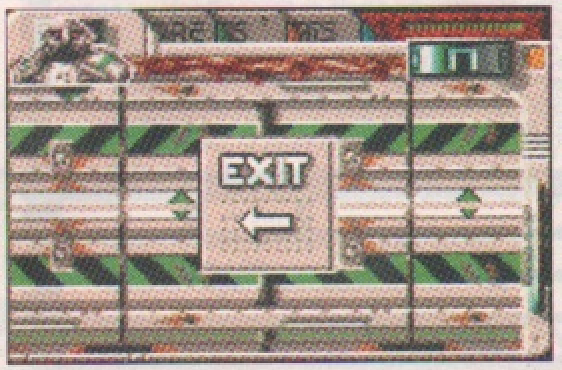
This is, though, a minor niggle with an otherwise impeccable control system.

To ease you into the action you can choose to take part in a training mission. If the campaign itself sounds a bit long-winded there's a choice of 16 short-action missions where all you need to do is make it from one end of the scenario to the other in one piece. These are actually tougher than the campaign as not only do you have to contend with hordes of creatures baying for blood you're also up against a timer.

I tried *Guns* out on an '040 A4000 and found the first action game almost impossible to complete; everything was too fast for my brain to cope with. (*No surprise there. Ed.*)

## MONSTER MASH

On a planet teeming with bio-engineered creepy crawlies you'd expect there to be one or two to blast. Well, you would if you'd forgot that DMA's last game involved you crushing hundreds of tiny humans under giant robot feet before mopping up the rest with a huge machine gun. To carry on that tradition *Guns* is absolutely overflowing with nasties and they all want to take a chunk out of your team. They're all generated from eggs that look like a cross between those things in *Aliens* and a pile of manure. Find these and you'll know how many creatures there are to blast. Don't let appearances fool you, though, 'cos whoever designed the creatures sure had a sick sense of humour, along with giant lemming mutants there's packs of cute little fluffy woofy Andrex puppies. Don't even think of stroking them, just blast them with




The complexes are absolutely huge which is why signs like this come in handy. They only give you the general direction though; so don't rely on them.

## IN CONTROL

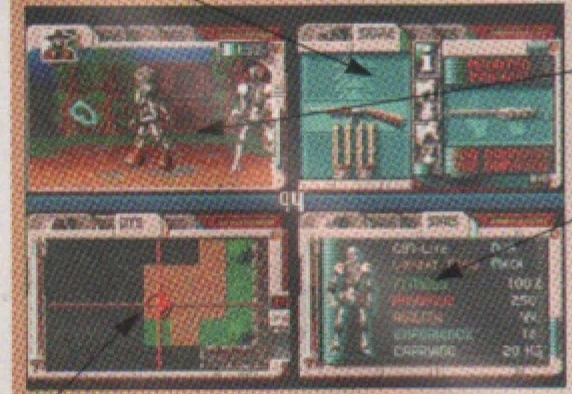
**The main interface is extremely easy to grasp – just point and click. Move characters around by placing the cursor over their view window. As you move it away from the centre of the screen it will change to a directional arrow, so you can step forward, back, to the side or rotate 90 degrees.**

**Considering just how much information DMA needed to squeeze onto a standard Amiga screen they've achieved no small feat. Each character has four card index-type screens that can be flipped by clicking on the label. My team members below each have a different window open.**

***Store Screen*: This screen gives you four options. Placing an object in your hands allows you to use it, pick it up or drop it or, finally, find out more about it.**

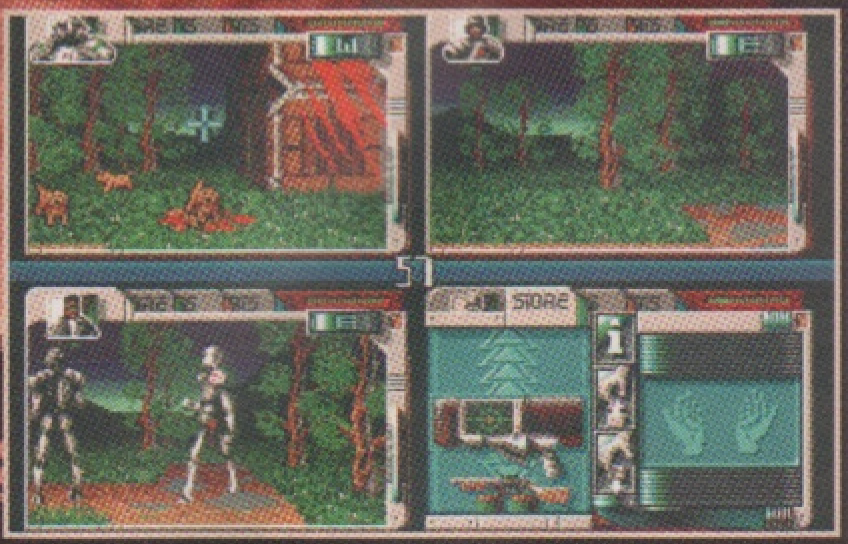
**Sorting through your goodies is simple; just click on the scrolling arrows.**

***Main View Window*: From here your character looks askance at the world around him. Move the cursor around and watch it change from crosshair to directional arrow. In the top left you'll see a little portrait representing the character. In the top right there's a compass to help you navigate and above that your energy bar. Too much red and your dead!**



***Character Statistics*: This last screen is the one you'll probably use the least. It gives you all the biographical details you could want, including how fit the person is and how much experience he's got. Be careful only to check this screen when you've got a quiet moment 'cos the mutants don't stop attacking just 'cos you're taking stock.**

***Digital Terrain Scanner (DTS)*: Virtually all the team carry one of these beauties and if they don't there's a good chance that there'll be one lying around somewhere. If you haven't sussed it by now it's an auto-mapper, that tool beloved by adventurers everywhere. The main design flaw is that is doesn't show where the mutants are!**



Don't let appearances fool you, these Andrex puppy things are lethal – one bite from their razor sharp teeth and you'll soon need some toilet paper.



## CLASSY CHARACTERS

At the start of each mission you'll be given a choice of four mercs to take in with you. There's 12 heroes to choose from, ranging from Kiurcher, a 49 year-old human marksman to Miyriel Torre, a 100 year-old cyborg; each with his/her/its own special characteristics. The upside of this is that they're all experienced fighters and come well equipped. The downside is that, until you've played the game a few times, you don't know what they're carrying. I would have preferred to see a detailed inventory for each character along with their portraits or, better still, some cash so that I could choose what weapons to take.

The portraits for these tough dudes are some of the most impressive piece of artwork I've seen on the Amiga. As you can see from our screenshot, they're incredibly atmospheric and brooding. Let's see more from this artist – Jamie Grant.

your Fluorine Laser.

On the subject of weapons your team all come ready equipped with some very nifty and unusual weapons. These range from simple body-mounted chain guns to weird psionic amplifiers that can send out blasts of energy. Initially, I felt like I could handle anything but when I met a couple of mutant fish creatures it became obvious that I'd have to use every weapon available. When I realised that ammunition was finite I began to panic!

## PANIC STATIONS

*Hired Guns* has had an incredible amount of thought put into it. Sometimes, with RPGs, it's obvious that certain sections have been rushed just to make the delivery date. Not so here, every ounce of the game has been carefully weighed and tested until only a quality product remained. The sound effects and tunes are brilliant, in fact DMA recommend that you have 2Mb of Chip RAM to enjoy them to their fullest. The graphic style is different, it's not exactly to my taste, but it is well put together. There's even an option to port your own character designs from any paint package into the game. The difficulty level is high, but not frustratingly so and the campaign game is probably the easiest to get into.

*Guns* is, without a doubt, a masterpiece. I started playing *Guns* over three days ago and have barely looked up from my Amiga since.

So, if you like bags under your eyes and and sweaty palms, buy a copy today. CU

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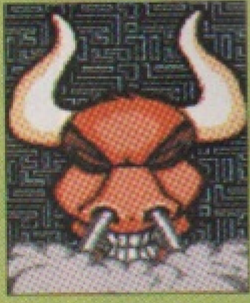
| | |
|---|---|
| RELEASE DATE: | OCTOBER |
| GENRE: | RPG |
| TEAM: | DMA DESIGN |
| CONTROLS: | M, K, J |
| NUMBER OF DISKS: | 5 |
| NUMBER OF PLAYERS: | 4 |
| HARD DISK INSTALLABLE: | YES |
| MEMORY: | 1MB |

| | |
|---|---|
| GRAPHICS | 82% |
| SOUND | 95% |
| LASTABILITY | 94% |
| PLAYABILITY | 91% |

*A fresh look at a tired genre. Challenging in the extreme.*

**OVERALL 91%**







**Desperate for some excitement in his sordid life, Jon Sloan flexes his joystick skills to test the long-awaited platformer from those French wonders, Hudson Soft.**

# YO! JOE!

There have been many benchmarks in the field of Amiga platformers. Games like *Rainbow Islands* and *Zool* have shown us all what's possible with an Amiga. Unfortunately, *Yo! Joe!* is not in the same class as those giants. That's not to say that it's bad – it is, at best, merely mediocre.

The plot contains the usual number of graphically different levels. Apparently, a gang of evil nasties has gathered together to question an all-seeing Oracle. They want to know how well their drug dealing will go next year. Even for drug dealers this bunch is weird. I mean there's Count Costrimo, a vampire; Sheebop, the half-sister of an Indian goddess; and even Professor X, a mad cyborg. The Oracle has some plans of its own however and, in an effort to avoid being locked away, tells the evil bunch that two boys must be destroyed if they are to be successful in their chosen profession. Joe and Nat are the sprogs in question and, unluckily for them, manage to find themselves lost outside Count Costrimo's castle. What a coincidence!

There are a few sub-plots involving graffiti and gang warfare, but they are even less believable than the main one so I won't dwell on them.

## HOTTING UP

The aim of the game is to traverse six levels of platforms whacking as many enemy sprites as possible and collecting any treasure you may find along the way. Initially, Joe's only weapons are his feet and fists so he can punch or karate kick opponents away. Some of his opponents are pretty tough though, so he'll need to find the many weapons scattered around, such as the fast-spinning nunchakus (flails), lead piping or molotov cocktails (petrol bomb.) Only the flails and pipe are permanent once collected whilst the others need topping up, so be careful how you use them.

The main levels are varied with various types of bad guys with their own methods of attack. Level three, for instance, is set in a South American temple full of mad cannibal Incas; these guys attack you with spears, axes and boomerangs. Level four is in Japan and is strewn with ninjas popping up out of the floors and walls with knives, blowpipes, shurikens and swords.

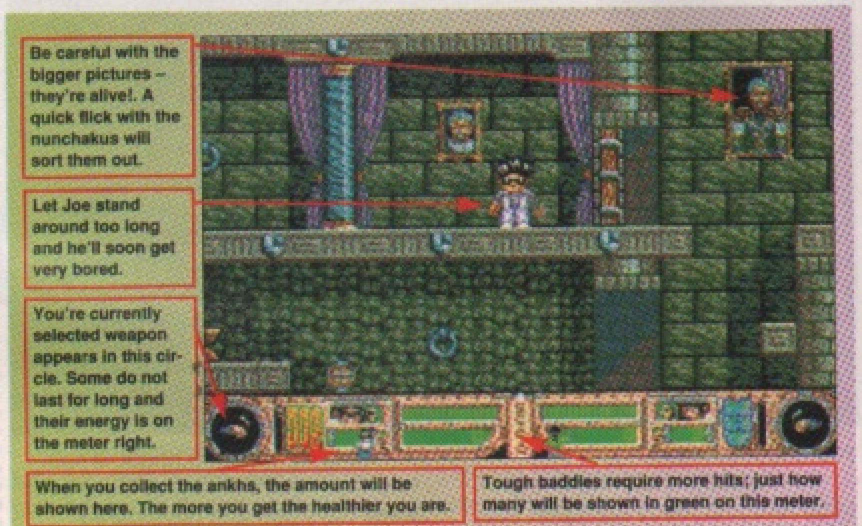
Joe is a pretty resourceful character though, and once you've found a decent weapon, the enemies can be dispatched with relative ease. The same is sadly true for the end-of-level guardians. You can easily beat a guardian without losing any energy.

## ELVIS IMPERSONATOR

The game has a very polished feel and it's clear that much time and effort has been put into the sound and graphics. The sampled effects are excellent with vicious cracks and booms accompanying Joe's martial arts blows. The background music skips along unobtrusively. The graphics are quite reminiscent of that old Bitmaps' classic, *Gods*, and have a distinct French style which is hard to describe but easy to recognise. Joe himself is a well-developed lead and has some smooth animations especially when he's spinning the nunchakus. But, for some reason, Hudson Soft decided to make Joe look like Elvis, complete with white suit! Perhaps it's some kind of continental thing that I haven't cottoned on to.

It's a shame that after so much skill has been employed in the rest of the game, that very little has gone into the prolonging the gameplay. I'm not an excellent platform player but I managed to complete the whole game in one morning!

No matter how well presented *Yo! Joe!* is, you will complete it quickly. It is nothing more than a flawed attempt at producing a classic game. Wait for the budget release. CU




One magazine rated this game in the low nineties, the reviewer even claimed to have stayed up till dawn for days on end playing it. This forces me to question whether he played the game at all (unless he's got the co-ordination of a two-year old, that is.).

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| | |
|---|---|
| RELEASE DATE: | OUT NOW |
| GENRE: | PLATFORM |
| TEAM: | IN HOUSE |
| CONTROLS: | JOYSTICK |
| NUMBER OF DISKS: | 2 |
| NUMBER OF PLAYERS: | 2 |
| HARD DISK INSTALLABLE: | NO |
| MEMORY: | 1Mb |

| | |
|---|---|
| GRAPHICS | 86% |
| SOUND | 88% |
| LASTABILITY | 24 |
| PLAYABILITY | 81% |

*'Enjoyable but flawed platform game.'*

**OVERALL 69%**

Each level has a number of tougher nasties, like this skull creature. Fortunately, Joe remembered the recipe for molotov cocktail...



There are quite a few of these stupid-looking barrels scattered around which, if touched, drain your energy.

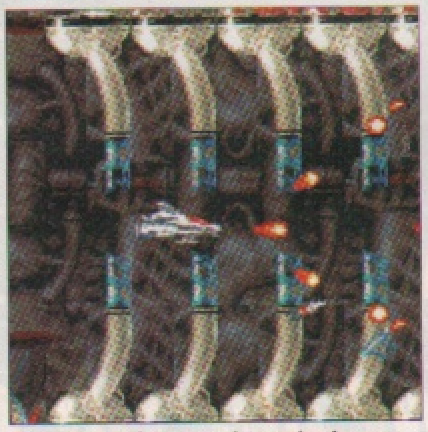


Another mid-section baddie is this pumpkin head. He's easy to beat though; just stand on this block and flail away.



# DISPOSABLE HERO

**Get your trigger finger oiled and ready once more as Gremlin prepare to fire their retaliatory shot at Team 17's *Project X*. Tony Dillon doesn't need to oil his finger; he's as greasy as they come.**


Everything and everyone is gunning for you.


More bolt-on extras than *Xenon 2*! Believe it!



Some serious joystick waggling lies ahead...

There was a point, a couple of years ago, where shoot 'em ups were ten a penny. You couldn't open the review pages of a magazine without seeing '*Deathblazer*' or '*Alien Run*' or some similarly macho name staring out at you, promising the wildest ride of your life, and another joystick consigned to the bin. A lot of them were awful, but some were wonderful.

Unfortunately, the genre slipped into a coma when Mario and Sonic made their collective presence felt, and since then we've been slowly choking on a bubblegum diet composed almost entirely of sweet cartoon characters and chocolately platforms and even more sickeningly fluffy 'heroes' whom we're all expected to wear the T-shirt of.

God, it's only *Syndicate* that's kept me sane. But what's this? Could we be returned to the glorious days of 'shoot first, shoot a bit more, keep on shooting and forget the questioning'? It could be, if Gremlin's latest aquisition, *Disposable Hero*, is anything to go by. Why, it even has a stale and tacky plot! No bad thing in itself, especially when it so blatantly and pathetically tries to hide the fact that the game is nothing more than an all-out violence orgy! For those who are interested, the game is set way into the future – somewhere around the twenty eighth century, after most of the human race has been wiped out by aliens. Well, what did they expect, poking around all over the unknown universe to see if they could find life, only to start all-out war with it when they struck lucky. Now, only a small pocket of resistance is left. In a word, you, and as the *Disposable Hero*, you have to go against the might of the alien armada, across an alien landscape and wipe out all known life. Now, that is what I call a plot. Not.




Take That! Cue girly screams...

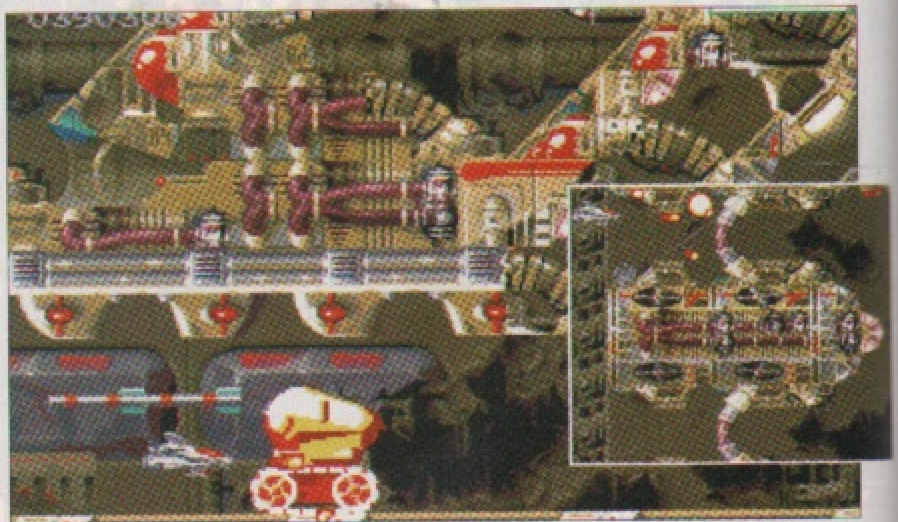
Have I made the point that it's a pure arcade blaster with little need for thought and stacks of work laid out for both your joystick and your index finger? If you thought *Project X* was tough, then you ain't seen nothing. This game throws everything, and I do mean everything, at you. The landscape attacks you. The small scaly things that crawl over the landscape attack you. In fact, anything that moves is likely to have a pop at you if you turn your back on them for a second.

Of course, the millions of alien 'things' that fly around go for the throat in a big way. To think, all you have to fight back with is a tiny little fighter with a pathetic little laser gun and your own resources. Not that that's the strict truth, of course. You can upgrade your ship's weapons and capabilities, taking this small, harmless 2CV of a craft and turning it into a gunmetal grey Capri with furry seats, a stereo with at least two dozen bass speakers and some rather nutty custom fairing. For full information on all the weapons available, check the panel on the opposite page. What that panel won't tell you, however, is how you actually manage to get the weapons.

There's no money involved. You don't need to trade a single thing and you definitely don't get weapons as reward for your gun prowess. Instead, a more sensible system is employed. Each weapon and improvement requires a certain amount of power to function, and your engine is only capable of putting out a certain amount of gigawatts. In the same way, the hull only has so much room, so the trick lies in balance. You can have any weapons you like, provided that your engine has the juice to power them and there's actually room for them on the ship. Naturally, the first thing you'll need to get is a bigger engine, after which you can quite comfortably fit a

## SOUND BLASTER

**Sound has always been regarded by games-players as a very important part of the atmospherics in a game, but it always seems to be sadly neglected by most software houses. *D-Hero* is different, thankfully, supplying the player with not only some superb pieces of music that sound like they've just come out of *Blade Runner*, and a collection of suitably explosive sound effects, but a mixer on the menu screen that lets you choose the respective volumes of both**


This game's such a great looker I'd swop it for my girlfriend anyday. [*You're sad, Tony! – Ed*]




Turn the volume up high, turn the lights down low, and get down to some serious blasting.

three way firing cannon, an energy shield and a couple of homing missiles, which should make life a hell of a lot more violent.

The graphics are very attractive, you have to admit, but there are a few points where the finely-detailed sprites and backdrops can cause some major problems. The backdrop is made up of two components: the scenery which is purely decorative and scrolls along in the background, and the foreground obstacles, which are hard, unbreakable and completely fatal should you smash into them when you can't tell the difference between the two. The whole thing does look stunning though.

It plays well too. The ship manouvres well, and responds quickly to the joystick commands that come thick and fast in the midst of battle. Autofire is automatic, so all you need to do is keep your finger on the button to unleash a 'stream of death'. There are four difficulty levels to choose from, so the enemy are never too overwhelming, just whelming enough, and the variety of attack waves and enemy styles keep the whole thing interesting. Not the most original game ever, but a fun blast that is good for a few weeks.

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| | |
|---|---|
| RELEASE DATE: | OUT NOW |
| GENRE: | SHOOT-'EM-UP |
| TEAM: | IN HOUSE |
| CONTROLS: | JOYSTICK |
| NUMBER OF DISKS: | 2 |
| NUMBER OF PLAYERS: | 1 |
| HARD DISK INSTALLABLE: | NO |
| MEMORY: | 1Mb |

| | |
|---|---|
| GRAPHICS | 84% |
| SOUND | 87% |
| LASTABILITY | 74% |
| PLAYABILITY | 81% |

*"A fast paced, well polished shoot 'em up."*

**OVERALL 79%**

## TOOLING UP

**If it's weapons you're after, it's weapons you'll get. Here's a selection of what's on offer.**


The basic, standard Pulse Laser.


The Sonic Disrupter


The Nuclear Projector


Vertical firing cannon.

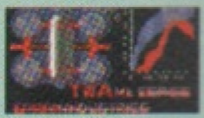

Ion Deflector Shield. Saves 50% of damage.


A basic engine accelerator.


A more advanced accelerator.


A more powerful shield.


The second most powerful accelerator.


A massive accelerator.


A grenade launcher, for more destruction.


Orbiting pods swing round the ship.

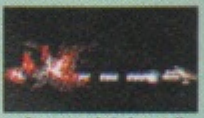

A basic engine increases power.


A larger engine means even more.


How much power do you need?


The biggest, and strongest engine.


Tracking cannons follow the enemy.


A powerful, front firing pulse cannon.


Upgrade to three way firing cannons.


Homing missiles make life easier.




# PREMIER MANAGER 2

## GREMLIN OUT NOW £25.99

It's been said a thousand times, but football management games have really come as far as they can. There are only so many things a manager can do before it all starts getting silly, and I for one thought that Gremlin's *Premier Manager* had just about everything. When I heard they were doing a sequel, I honestly couldn't see how they could have built upon what was already there.

Seeing the finished result, I have to say that's it's more than a little overwhelming. *Premier Manager* covered every conceivable angle, from basic team management, right down to ground improvements, booking ads to go on the hoardings and full accounts control. *Premier Manager 2* has all of this, with a little bit more, and everything in so much detail it'll take you a week just to find your way around the game, let alone playing it properly.

Over eighty options let you guide your team through six different leagues, battling through six different cups against every team in Europe, while you try to keep the ground in a fit condition and keep the board of governors confident in your ability. Plus there's the bank to deal with, the scouts and coaches to work with and, of course, the matches themselves to play. I have to say, though, that it does play slightly differently to most managerial games as the focus does seem to be more on the running of the club than the actual games the team plays, leaving you with a lot more to do off the pitch than on. No bad thing, but moving a little too off centre for my liking.

It's a good game, excellently presented and well thought out, but I can still only give it an average mark, as it doesn't really do it any better than any of the other four million managerial titles that are out there.

**75%**




You can even specify what makes of beer you can drink in the club room. Well, nearly...

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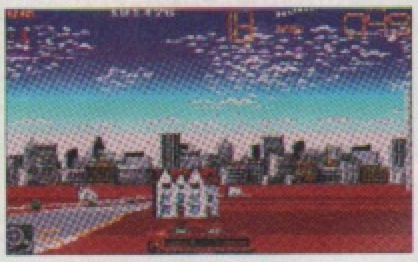
### HIT SQUAD OUT NOW £9.99

For those of you unfamiliar with this ancient coin-op conversion, it's basically *Outrun* with violence. As a member of the top Special Criminal Investigation team, it's your job to track down killers and other scum polluting the highways of America. For some reason they all drive fast cars, so you're given an equally smart vehicle to make sure you can catch them.



Keep the pedal to the metal and tear up those highways in pursuit of your prey.

The gameplay, however, has no finesse at all. At the start of the game, you're told who you're after and are sent out after them. After a few minutes driving, you come across the offending vehicle which is conveniently picked out by a large yellow arrow. From here on in, it's just a case of ramming them until they give in or the clock runs down. It's hardly very taxing, now is it?



But don't go too fast, or you'll end up parking in somebody's front garden.

The game suffers from a fatal lack of variation. There are no new cars for you to drive, no exciting new hazards to thwart your attempts at law enforcement. Dull repetitive backdrops make it a chore to continue beyond the first couple of levels. In fact, you'll probably find yourself putting the disk back in the box after only half an hour as it offers nothing to keep you glued to your joystick. If you're after a fast-paced driving game, stick with the Lotus series, they are much better games. This blend of action and simulation just doesn't work at all.

**Mark Patterson**

**56%**




This is the car you're after. The only way to stop it is by blowing it full of holes and turning it into an insurance man's nightmare.




Strike one! If you get bored pitching the usual way, aim one at the batsman to keep him on his toes, or on a stretcher, whichever way you look at it.



Slide to base if things are looking hairy. Be careful though, if you run out of steam you'll not only end up with egg on your face, but also face a short walk back to the dug out.

## HARDBALL

### HIT SQUAD OUT NOW £9.99

Baseball is one of the games which most Brits don't generally see the point of, especially when the majority consider it to be nothing more than Americanised cricket. Still, Accolade went out on a limb with this game and they came up trumps.

*Hardball*, which is now over six years old, was one of the first baseball games to appear in this country. Because this is essentially the same version that was released in the States it contains loads of terms such as 'RBI' (Runs Batted In) which mean very little to the baseball illiterate.

But, if you like baseball and can tell a change-up from a curveball, then *Hardball* could be the game for you. It has large, well-animated graphics which are used primarily for the pitching and the batting and change to a smaller view of the pitch when it's time to run. The excellent graphics combined with the fluid gameplay make the action extremely addictive.

The only real criticism I have is that the matches drag on too long. Nine innings, plus overtime if the scores are level at the end, make each match far longer than necessary.

Batting is more fun than pitching. The type of shot you play depends entirely on timing, swing too early and the ball will be spun up and off the bat, too late and you'll hack it out of bounds. Even if you're not a baseball nut and just want to try something different, *Hardball* is a decent purchase at its new asking price.

**Mark Patterson**

**82%**




There are loads of different types of pitches to play. The traditional fast ball is still one of the best, as a pitcher can hit curve balls into oblivion.

Looks interesting doesn't it? OK, so it doesn't. Basically, this screen tells you how far you have to slug the ball when you use regular or professional tees.




# MEAN 18

## HIT SQUAD OUT NOW £9.99

Computer golf games are usually very hit or miss affairs, especially because the people who buy them are usually those who play the game for real. *Mean 18* is designed to test just those sort of people by pitting them against the toughest 18 courses they'll ever encounter.

In some respects the game is extremely challenging. It's not so much because of well-designed courses, but the badly worked control system which destroys the best of handicaps. This invariably leads to copious amounts of frustration as you inadvertently spang shots extremely wide of the mark through no fault of your own.

There are no frills either. This has to be the dullest golf game ever. If they gave out Golden Turkey awards for computer games this would top the sports category. Apart from club selection and a rudimentary system for taking your shot the game offers nothing else at all.

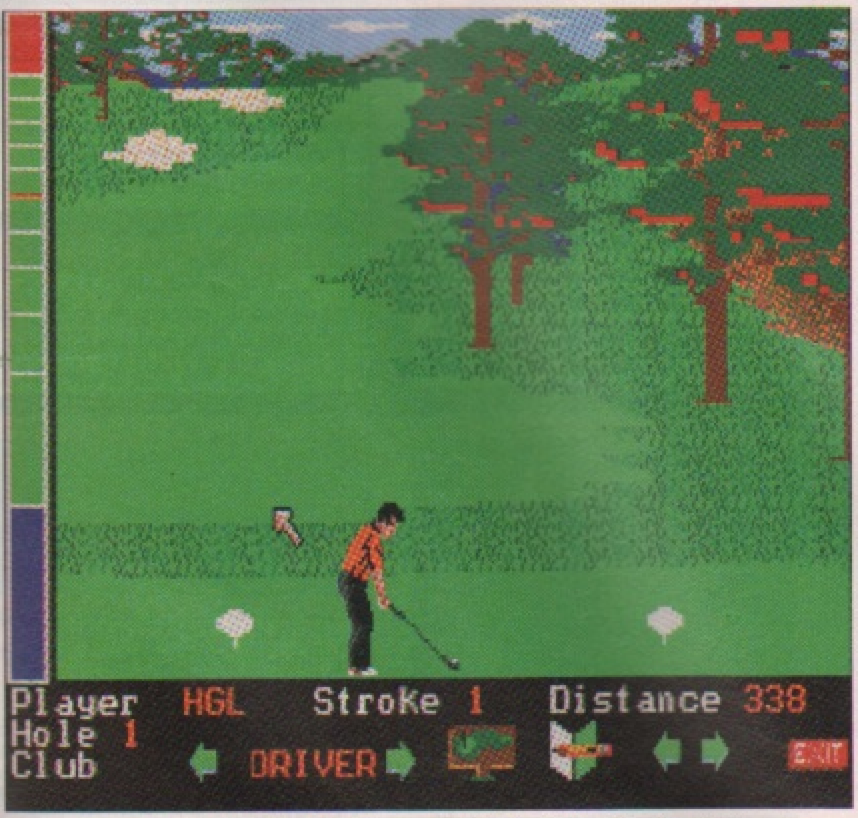
To cap this all off the graphics are very dull indeed. The landscape offers no impression of realism whatsoever. This is partly down to its age, but that's not much of an excuse when you know it was slated by most games reviewers first time around.

Even at a budget price you should steer clear of *Mean 18*, not even hard-core golf nuts will find any sort of playability here.

Save your cash and aim for *PGA Tour Golf*, or *Microprose Golf*. They're far more professional and realistic.

**Mark Patterson**

35%




*Mean 18* is hardly what you'd call realistic. In fact, it's hardly what you'd call good. There are many better golf games out there, with this one well off the leader board.




Wow, just look at the detailed backdrops and the excellently-animated fighters. Actually, I'm lying. No matter how hard you look at this game you won't find anything worth praising.

# FIST FIGHTER

## ZEPPELIN GAMES OUT NOW £7.99



The aim of the game is to take one of eight top martial arts experts and, using his skills, beat the tar out of every challenger you meet in one-to-one contests. As with most beat 'em ups, *Fistfighter* features the usual range of hand and foot combinations plus the ubiquitous special move unique to each contestant. The game's set over three locations, in Egypt, Japan and the USA. I can understand the programmers choosing Japan and the USA as venues for gruesome martial matches, but exactly why they chose Egypt is beyond me.



It's the ancient art of Unclean Underpants! Masters of this art don't wash their underwear for months. Then, in battle all they had to do was leap into the air and give their opponent a whiff of smelly knickers.

Anyway, naff choices aside, the rest of the game manages to live down to the standards set by the simply awful box art. If I was to tell you that the art is a poor rip off of a particularly bad action flick, called *Angel Town*, you'll get some idea what the gameplay's like.

Perhaps the best description of *Fistfighter* is, it's the worst beat 'em up I've ever had the misfortune to play. The main sprites are poorly drawn with their limbs resembling something a five-year old could manage in his first art lesson. The collision detection is abysmal and there's very little reaction shown when blows actually do land. Worst of all, is the fact that an uncoordinated idiot could finish the game in minutes. Even I managed to beat all the opponents in my first session. Avoid.

**Jon Sloan**

20%




No, this fighter doesn't have incredibly stunted legs, he's just badly drawn! Actually, he's trying out his special helicopter kick move.

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You can play *Quest for Glory* as a Fighter, Wizard or a Thief, but whichever you choose you'll likely be contacting the Shrine of Knowledge for a clue before the day is out.

### RULES OF THE INN

This year the 'Witches Quiz', (sponsored by the Office of the Witchfinder General) will be held next Tuesday on the village green – next to the duck pond. There will be a BAR-B-QUE for all contestants after the show.

*By Order of The Innkeeper.*



Huddled beneath dark forces lies the town of Waterdeep. Soon you'll be dragged into a mighty quest – *Eye of the Beholder II* – which will pit your wits against the evil from Temple Darkmoon. Have you got the wit, the strength of character and the strong right arm to overcome them?

### QUEST FOR GLORY – TRIAL BY FIRE

It warms the cockles of my heart when I receive letters which say, "I've written to lots of magazines for help with my problem, but none of them could help, so now I'm writing to you." Gives you the warm glow of feeling wanted doesn't it? Steve Jarvis from Rugby is this month's most hated reader, but we'll forgive him this once and solve his problem. The evil Ad Avis has a nasty habit of setting fire to things when he gets his knickers in a twist and in so doing he is toasting the foolish Steve Jarvis. Can we save him and should we bother?

*The Shrine replies*: You have now arrived at the final moments of the game where you are menaced by a magic statue. Don't bother pushing your luck with this stony-faced opponent, just type Escape and you will move out of his reach. Cast a Force Bolt on one of the candles and this will cause Ad Avis to turn and attack you. Now you must run like fun around the pentacle towards the cauldron which will turn to flames. Take a deep breath, think of England, and run through the flames until you reach Ad.

He will be so surprised by your manoeuvre that he will fall through the window with surprise, all the while screaming, "Curses, you've had help from Tony Gill!"

### EYE OF THE BEHOLDER

A goodly number of you continue to fill the postbag with the problems that you're encountering beneath the floorboards of Temple Darkmoon. Here are a few hints that will solve many of your problems. You can find an extra copper key on the first level of the Temple by searching one of the beds (just click on it). The mark of Dark Moon is a brand on your hand which you'll get on Level 3 of the Silver Tower. To break through the Azure Bond on Level one of Temple, you'll need to smash it with the crystal hammer. The cursed sword, called Hunger, makes the character who uses it consume rations twice as fast as the others. A red gem found lying on the floor on Level 2 of the Silver Tower is used later to satisfy the magic mouth that seeks 'something red'. Other mouths on this level want: rotten food, five rocks, a potion, a scroll, the mantis idol, and the Hunger sword.

### GOBLIINS

Adventures which emanate from across the English Channel have that indefinable quality which marks them as very different from the home-grown variety. French games are like garlic; you either love them or hate them. I think *Goblins II* is one game which everyone will like although its puzzles can sometimes make your brain creak. Stephen Wren from Sawbridge- worth has fallen foul on the section containing the tree-houses and the basketball player and claims he is totally stumped. (Trees - stumped - geddit?) Oh yes, very droll.

*The Shrine replies*: Before we go any further I had better tell you that we are going to use the word 'Winkle'. Now I want all of you to do your sniggering now, and get it out of your system before I start. Are you ready? Get Winkle to throw a stone at the ball. As soon as the ball hits the ground a little boy will appear and steal it. (Don't you just love little boys?) To recover the ball both your characters must co-ordinate their next move. Prepare Winkle to follow the boy into the house that he disappeared into, while Fingle positions

»



A poor innocent child is spirited off into the night by an evil demon. Who can save the poor babe? Well, Fingle and Winkle might, but with silly names like that I wouldn't be too sure.

» himself by the top right door. Move Winkle and Fingle simultaneously, and Fingle will capture the little beggar. Fingle can now give the ball to the basketball player who will throw it through the hoop. Use Winkle to head the ball towards the Mayor's window. The Mayor will be so pleased that you have thrown a ball through his window that he'll pop out to have a merry chat with you. Move up to Tom's house and he'll tell you that he'll fix you up with an hourglass if you bring him a melody. Time to move next door and get musical.

## KGB

Men used to join the French Foreign Legion to forget, (I can't remember why) but Johan Macs from Belgium has gone completely over the top and joined the Russian KGB. Having smooth-talked his way into this deadly organisation, he has foolishly got himself into a pile of trouble that now requires the help of the Shrine to get out again. Currently our man in Leningrad is booked into the Hotel Go Stinitsa with a corpse which he can't move (reminds me of my honeymoon!). His instructions are to dump the corpse in the nearby canal without attracting the attention of the local fuzz. He knows that there is a wheelchair in reception, which could help his plan, but he can't figure out how to get it.

*The Shrine replies*: You should never have left Belgium should you? I know it can be a little boring at times. After all, once you've eaten a couple pounds of chocolate and bought a postcard of that disgusting little boy fouling the drinking fountain in Brussels there's not a lot else to do, but joining the KGB is a bit too extreme. Go into the bathroom and put the hat and coat on the corpse and pour some alcohol on him. Leave the room and find the tramp at the rear of the hotel who you can give the bottle of hooch to. Return to your room and move the body into Room 8. From here you can heave the body out of the window. It may be a little heavy, after all he is a 'dead weight', (Hee hee. That's what's known as black humour I believe) but he won't complain if he lands on his head. Go to reception and complain that someone is making a lot of noise up stairs.

Once the receptionist leaves to investigate your complaint you can grab the wheelchair and find the body. Put the body in the wheelchair and head for the canal. The police will appear, but don't worry as the body's rumpled clothing and the smell of booze will make them think that it is a computer journalist being taken back to the office after lunch.

## INDIANA JONES AND THE FATE OF ATLANTIS

Most players come a cropper when they try and figure out how to move the spiral design in the temple at Tikal. Just to be awkward, Rohin Francis from London says that he's solved that problem, but doesn't know what to do next.

*The Shrine replies:* Look genius, the hard bit was figuring out that you use the girl to keep the guide busy while you go outside and take the oil lamp from the stall. Use the kerosene to loosen and remove the spiral design step, which the clever ones amongst you managed to overcome.

Your final move is to attach the ornamental design to the statue on the wall at the left-hand side of the screen. The scroll design makes a nice elephant trunk for the head. Use the trunk like a lever, and hey presto! we've solved the puzzle.




**I'm stumped. Just how are we going to move that blasted spiral design in the temple at Tikal?**




## WEEN

Having previously mentioned that some French adventures can be great fun, we now turn our attention to another called *Ween*. A shy reader, (or a forgetful one) who didn't give his/her name, has written from Inchicore in Ireland to beg for assistance with this weird game. In this quest is a magical bat who will turn up to solve certain problems providing you can supply it with a regular diet of fruit.

Our reader's query is just as enigmatic as his identity, for all the letter says is, "I've gotten to a point where there are three scrolls which causes your opponent to change identity".

*The Shrine replies*: assume you are facing the dragon at this point, if not, you can sink back into your anonymity and turn the page! Collect the cherries for you will need them for old fruit-face, then click on the scrolls until the dragon turns into a wasp. Use the wasp trap which you found in the temple to capture it. Although you will have been turned into a worm at this point, (no comment) you can call up your flying friend and he will help you regain your natural form. CU

## MONKEY ISLAND

Gareth Hughes of Bristol will not be appearing on BBC's Master Chef this year. This announcement will not come as a surprise to anyone who has been unfortunate enough to have had dinner prepared by this gormless gourmet as it is obvious that he hasn't yet grasped the concept of recipes.

In *Monkey Island* our boy is required to put the ingredients listed on the piece of paper into a pot. Using his own unique logic, Gareth is placing the piece of paper in the pot instead of the ingredients. And now he is wondering why nothing is happening.

***The Shrine replies***: Placing a recipe for a birthday cake in the oven for an hour at 220 degrees will result in a piece of brown crinkly paper – not an iced cake!

The point of the exercise is to find alternatives for the ingredients listed on the paper and put them in the pot.

Normally I would now give you a nudge in the right direction to help you succeed, but in your case I think we had better spell things out. When you arrive on board, climb the rope ladder and get the flag. Go down the hatches until you reach the hold. Pick up the rope, open the chest and take the wine. Pick up the kegs to get some gunpowder, then head for the galley where no doubt you'll feel quite at home!

Pick up the pot and open the cupboard to get the cereal. Open the cereal and find the prize inside – a useful key.

Make your way to the cabin and find the ink. Use the key to open the cupboard, and then open the chest to discover some cinnamon sticks and that magical recipe.

Return to the kitchen and use the ingredients, (not the blooming recipe) on the cooking pot ( i.e. Cinnamon Sticks, Breath Mints, Jolly Roger, Ink, Wine, Rubber Chicken, Gunpowder and Cereal).

You'll find the result quite staggering. Incidentally, for all of you who can't release the prisoner (even though you've figured out that a mug of grog will melt the lock), take some extra empty mugs to transfer the rum between during the journey.

## NEXT MONTH

And now I have some good news and some bad news. The bad news is that owing to extensive redecoration requirements, the mystic Shrine of Knowledge will be closed at the end of this month. Boo! Hiss!

The good news is that a new, Adventure Helpline service will begin next month which we guarantee will inform, amuse and thrill you. Watch this space.

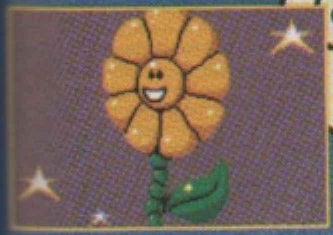
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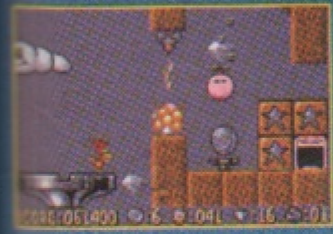
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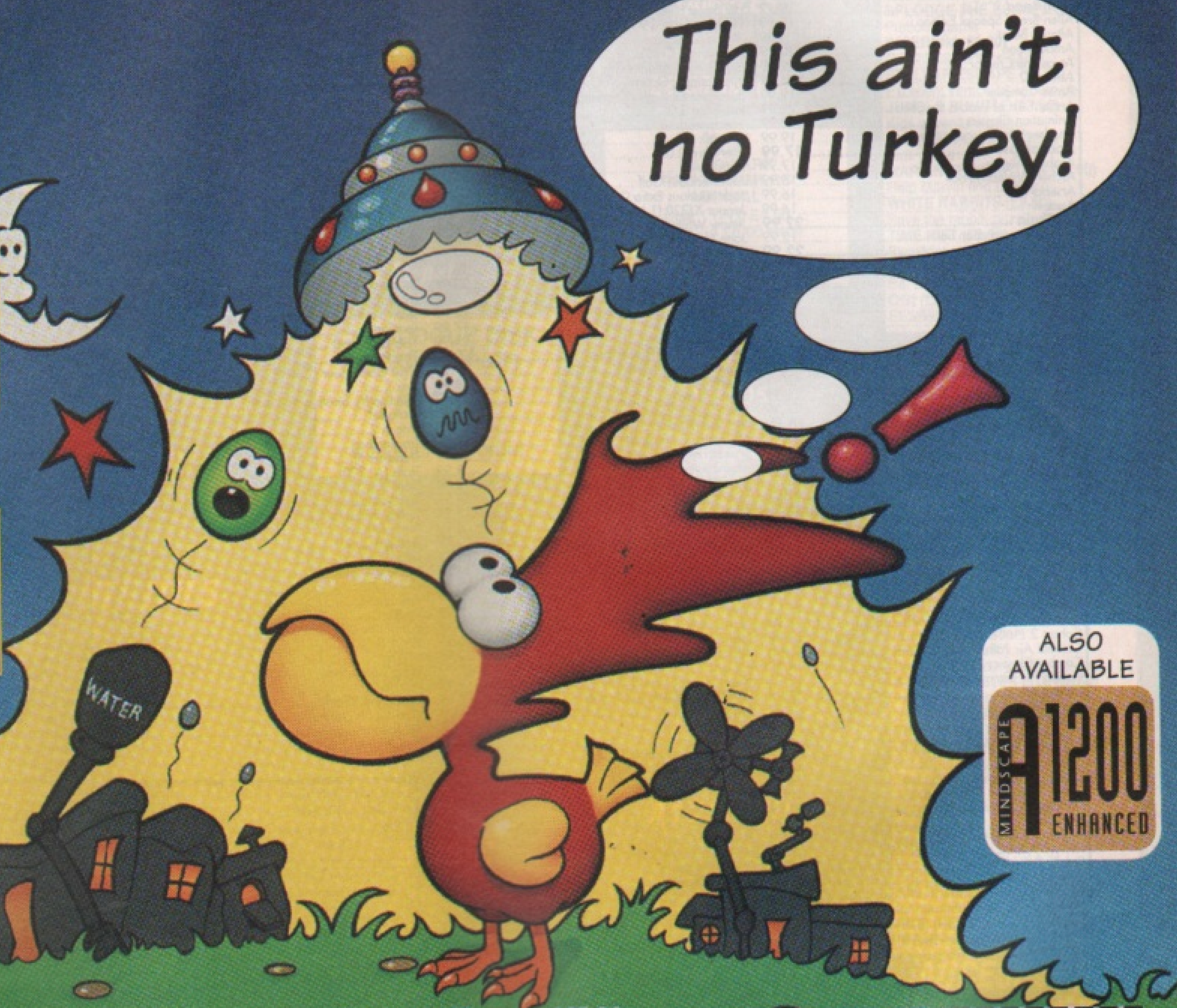

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## LOLA 520 MODULATOR

When your modulator finally packs up, why not push the boat out and go for one with a stylish mat-black finish? If you think you're ready for such a radical move, you may want to take a look at Lola Electronics' *520 Modulator*.

Apart from the colour, there's very little difference between this and the standard Commodore modulator. It's almost exactly the same size, which means that it's got a 15cm (6 inch) overhang at the back of the computer.

The main alteration is the positioning of the composite video and audio sockets. These were a bit of a problem on the Commodore modulator, as they were on the side of the box. If you have a sampler or some other peripheral plugged into the parallel port, the sockets on the Commodore model can be very tricky to connect up. The Lola modulator has all three: TV, composite video and audio sockets on the end of the unit. It also comes with a long TV connection lead, and a Y-adaptor lead to route the stereo sound channels in the mono input on the modulator.

At £29.95, it's probably cheaper than the Commodore option, in which case it wins hands down.

**Available from: Lola Electronics, Market Harborough, Leicestershire. Tel: 0858 880182. Price: £29.95.**

**80%**




## MEGAMOUSE 400



It amazing how much difference a mouse can make to your computing comfort. You could have the fastest machine imaginable, with a pristine monitor, 16-bit sound and a 24-bit graphics card, but if your mouse is on the blink, you'll soon be kicking holes in the wall with frustration. The problem isn't limited to old mice – even shiny new ones can be a pain if they're badly designed, so choosing a replacement isn't as simple as you might think.

The Golden Image *Megamouse 400* is a good option for those who like their rodents on the petite side. Although not excessively small, it is noticeably smaller than the Commodore mouse, and is about the size of an Apple Mac one. Both buttons have very light switches, but it still gives you the feedback you need.

Anyone upgrading from an old Commodore mouse who is into graphics, or anything else that involves precise mouse movements, will instantly notice the difference made by the 400 DPI resolution. This is about twice the resolution of the original Amiga mouse, and makes fine editing much easier. The increased resolution also has the effect of speeding up the pointer movement, so if you find even the fastest setting on the Workbench preferences too slow, this will remedy the situation. Anyone in need of a replacement mouse should consider the *Megamouse* 400.

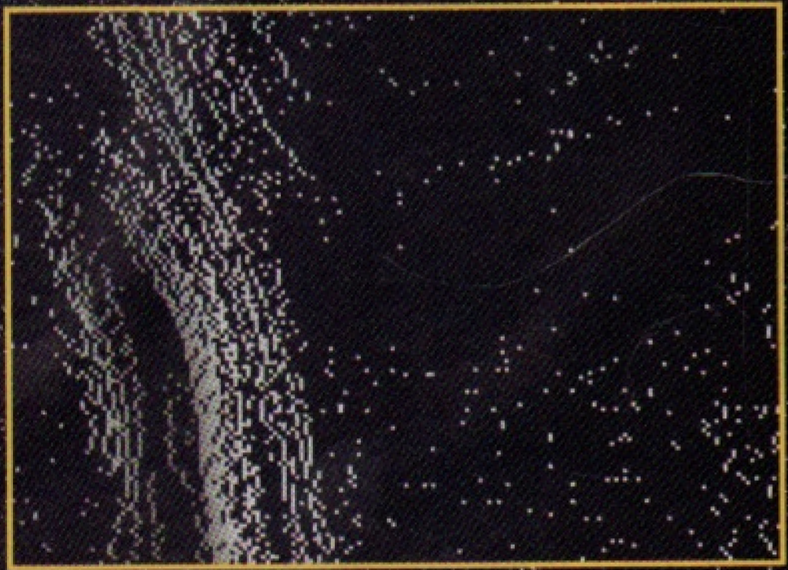
**Available from: Golden Image, Unit 12a, Millmead Business Centre, Millmead Road, London, N17 . Tel: 081 365 1102. Price: £14.95**

**88%**

## NEXUS PRO VIDEO CLIPS

Although they're aimed squarley at video producers, the Nexus series of clip art disks would be just as much use to anyone involved with 3D ray tracing and animation. There are five ten-disk sets, each of which is devoted to fabrics, papers, textures, travel, or weddings. There's also an introductory set which includes samples from all five categories. All graphics are available in 16 colours or 256/HAM8 mode for AGA Amiga owners.

The textures could be used simply as backdrops for video titles, or as texture maps for 3D objects. Not as versatile are the digitised pictures, such as the postcard-style shots of historic buildings and tourist attractions in the Travel set. For producers of wedding videos, there are satin backdrops and ornate flower arrangement (how romantic). The picture quality varies from good to excellent. They probably won't bowl you over, but if you feel the need for some practical video clip art or texture maps, they're well worth investigating.



**Available from: Videoworld, 8 Ardoch Gardens, Cambuslang, Glasgow, G72 8HB. Price: £29.99 per set**

**78%**

# ACCESS AMIGA




This is the first issue of a new magazine from the people behind *Amigamaniac*. After running the *Amigamaniac* club and its accompanying magazine for some time, the organisers have now progressed to *Access Amiga*, a full 44-page A4 mag that comes with a covermounted disk. You get all this for just £1.75.

The new *Access Amiga*, like the *Amigamaniac* mag, covers the whole range of 'serious' uses of the Amiga. There are regular sections on PD, books, letters, music and education, along with reviews of the latest hardware and software developments. There are also numerous features on various Amiga-related subjects which offer some alternative to the reviews.

While it can't match the gloss of the major Amiga mags, it does have a rather endearing, more personal style. Highlights of the October issue include an Eric Schwartz special, and an interview with Bjorn Lynne of the AM/FM disk mag. The coverdisk has a cut-down demo of an educational game, plus a couple of tunes from AM/FM.

**Available from: Weekend Developments, PO Box 208, Folkestone, Kent, CT19 5EZ. Tel: 0303 220198. Price: £1.75 per issue, £10.50 for six or £19 for a year's subscription.** 81%

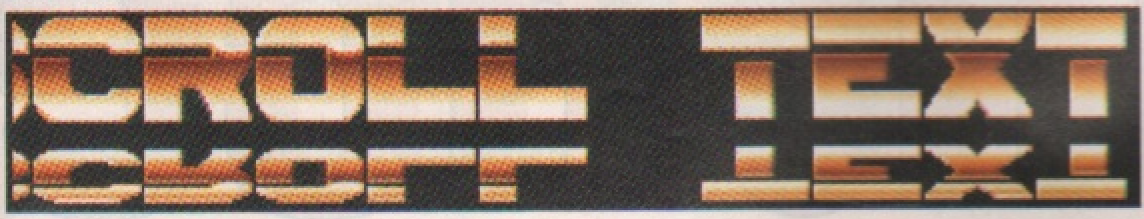



# ACC HARDWARE PROGRAMMING MANUAL

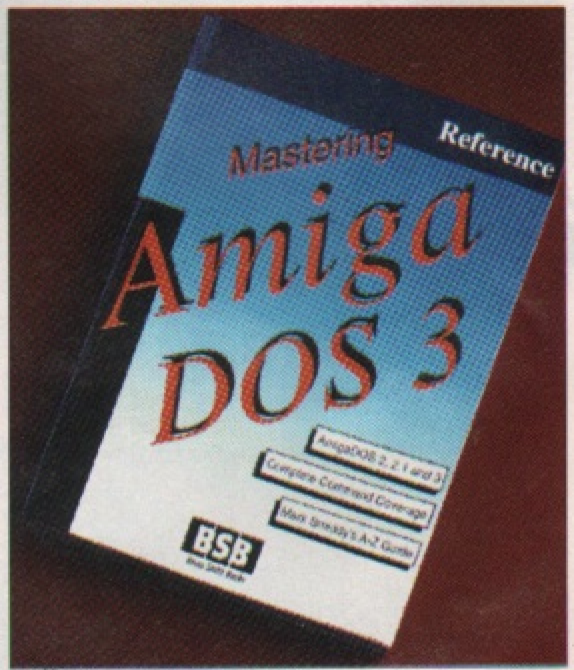
Programming the Amiga's hardware directly isn't something that Commodore like to promote. If they had their way, everything would go via the operating system which has the advantage of greater compatibility with both new and old machines, but if you're programming things like games and demos, where speed is essential, this method is just too slow. Getting hold of information and tutorials on the hardware can be quite a task, but now you can swot up on all the finer points of your Amiga's chips with the *ACC Hardware Programming Manual*.

ACC (Amiga Coders Club) have been going for some time now, producing regular PD disks on programming the Amiga in general. The 'manual' comes on four disks. The first is PD, while the following three are available for £5.00 each. Disk one is an introduction to the series and assembler in general. The second covers input, the copper, interrupts, audio, general and start-up. Disk three is dedicated to display and the fourth concentrates on sprites, text, the blitter and scrolltexts. There are loads of examples, each of which is explained in an easy-to-digest manner, and can be tested out by simply clicking on their icons. Source code is of course included with all of the examples. The source code and assembled versions make this a far easier and more interesting way to learn about the Amiga's hardware than from a book, and should be on the shopping list of every budding programmer.

**Available from: Amiganuts United, 12 Hinkler Road, Southampton, Hants, SO2 6FT. Tel: 0703 470017. Price: Disk 1 £1.25, disks 2-4 £5.00 each. Add 60p post+packing for each order.** 89%




# MASTERING AMIGADOS 3
## VOLUME 2

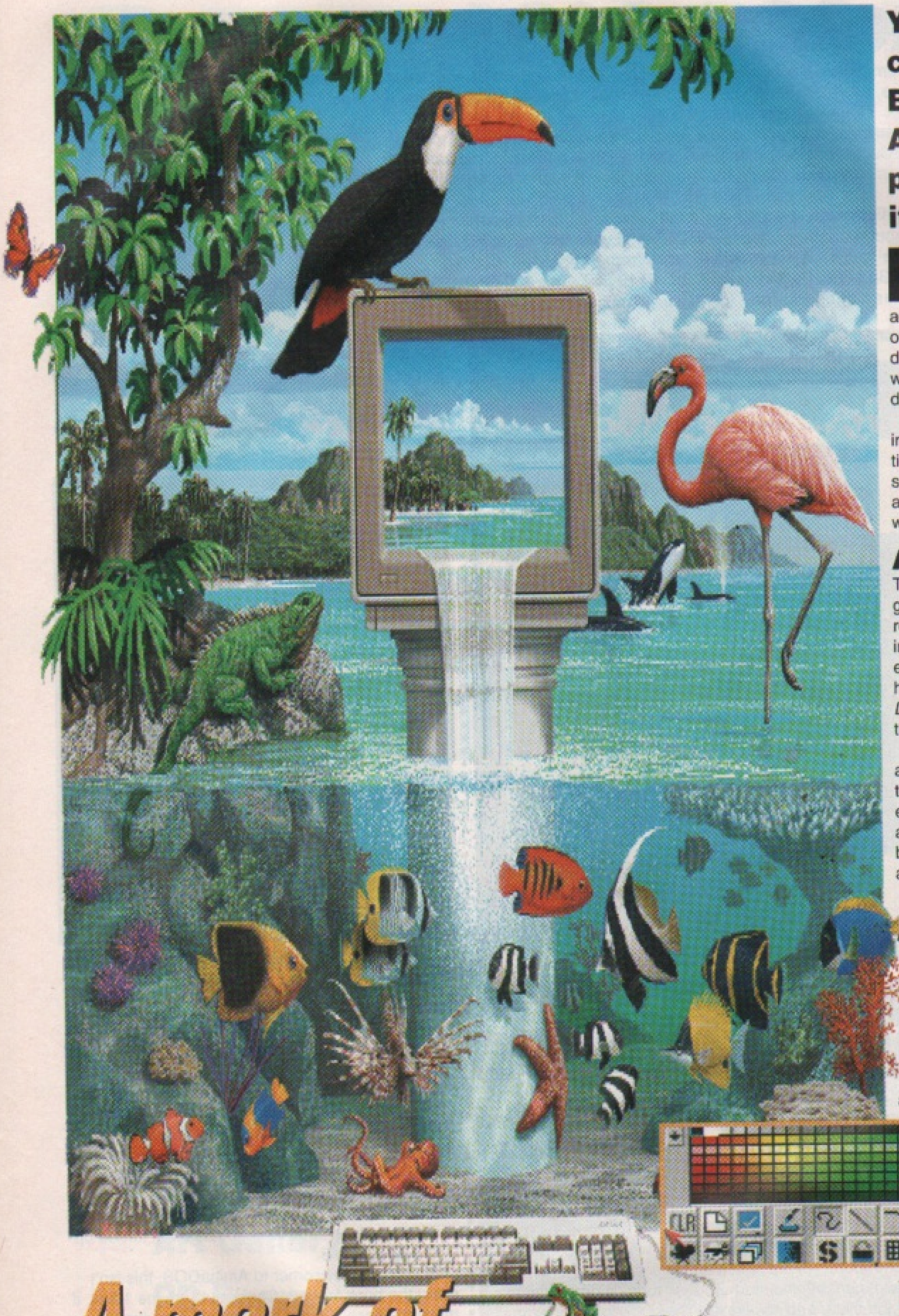



The manuals supplied with the A1200 and 4000 might be okay if you just want to know how to use the Workbench menus and open a few windows, but if you want to get your hands dirty in the Shell, you're left wanting. This is where *Mastering AmigaDOS 3* comes into its own.

Volume one covered the basic theories of AmigaDOS 3, while Volume 2 is more of a reference guide. It covers all of the CLI (Command Line Interface) commands in alphabetical order, giving plenty of explanations and examples. Sections on areas other than Shell are also included. The new hypertext system, AmigaGuide, is covered, along with some of the other new goodies that turned up with Workbench 3.

If you're a newcomer to AmigaDOS, this isn't really the book for you. Check out Volume 1 first, if that's the case. On the other hand, if you've got a reasonable idea of how AmigaDOS works, but want to know how to do more than just copy files and list directories, this is exactly what you'll need to get swotted up on all those labour-saving commands. The author, Mark Smiddy, has provided an exhaustive, but very readable guide to a complex subject, but presented it in such a way that it doesn't seem so complex after all. Whether you want to go through from start to finish, or just look up a command every now and then, it's the ideal companion to your new Amiga.

**Available from: Bruce Smith Books, Freepost 242, PO Box 382, St Albans, Herts, AL2 3BR. Tel: 0923 849355. Price: £21.95** 81%



**Yet another *Deluxe Paint* challenger has arisen. Mat Broomfield wonders if the Amiga's number one art package has finally met its match.**

For more than six months adverts have been appearing in the American Amiga mags for a new high-end art package called *Brilliance.* In actual fact, you get two programs for the price of one. *Brilliance* is a register-based art package designed to work in all non-HAM screen modes, whilst *True Brilliance* is a True-Colour package designed to work in HAM mode.

*True Brilliance* represents all graphics internally in 15-or 24-bit colour, and modifies this representation to display images in the current screen settings. These images can be saved to disk either as 15-or 24-bit files. This means that you have a way to create and edit files in full-broadcast quality.

## A NEW APPROACH

The program's authors, Digital Creations, have given the entire subject a radical rethink, and the result is a program which has absolutely no menus in the conventional sense. This is a bit of a double-edged sword because it means that once you know how to use it, *Brilliance* is more user-friendly than *DPaint*, but getting to grips with it is harder because the options are far from self-explanatory.

The basic functions of the program are accessed via a tool bar which runs along the bottom of the screen. There are thirty different tools, each represented by an icon, although to call them all tools is not strictly accurate. Of course, there are basic tools such as spray can, line draw, freehand and so forth, but there are also icons whose selection enables you to access a whole new set of related features. Good examples are the palette, animation and file requestor icons.

Many of the icons have multiple functions according to how many times you select them, with which mouse button and with what options you use them. For example, the airbrush icon will produce a standard airbrush the first time it's selected, but this switches to a splatter brush the second time it's clicked upon. Click once more and it changes again to give you a stencil airbrush

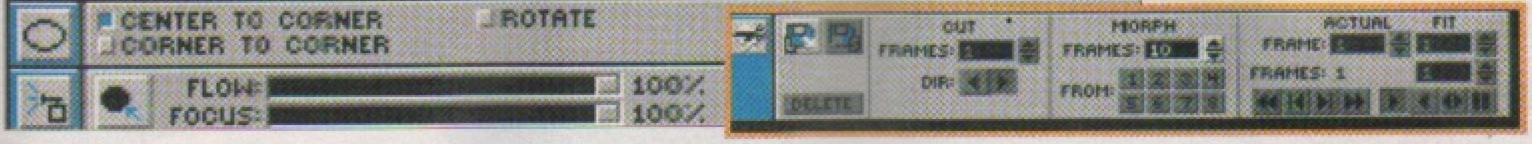



**Years in the making, *Brilliance* is the program that proves there is life beyond *Deluxe Paint*. This gorgeous Sachs original is rendered in 256 colours at a size of more than 800x800 pixels.**

# A mark of Brilliance




Left: I was particularly impressed by the way that *Brilliance* lets you 'stack' open requestors on top of each other. This means that you can adjust the options and still see the screen.




Above right: Among other things the Anim Brush menu lets you create smooth animated transitions (morphs) between the current brush and any of the eight other brush buffers.

## FILE FORMATS

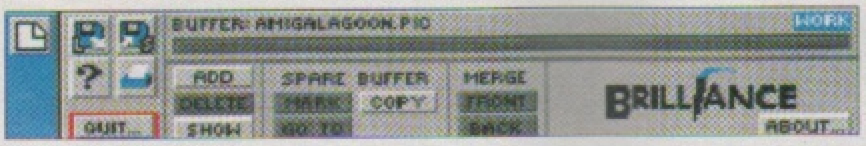
**As the Amiga is used more and more in professional environments, a variety of import and export formats is quite important. *Personal Paint* scored strongly in this area, and *Brilliance* does at least make effort with its ability to load and save every type of IFF file from ordinary 5-bit right through HAM6 and HAM8 to 15-and 24-bit images. It can even deal with DCTV saves, although this is not surprising as Digital Creations manufacture that too.**

**It's sad to see that there is no provision for formats such as GIF, Targa, Tiff or any of the others which are frequently used in the professional world.**

mode. If you select the icon with the right mouse button, a requestor appears that allows you to adjust the size, flow and focus of the spray.

Running along the top of the tool bar is the 64-colour palette and if you're using an AGA Amiga this increases to a maximum of 256 colours unless you're working in HAM8 mode, in which case the palette contains 384 colours. By expanding the palette, you can see up to 256 colours at any one time.

At the right of the tool bar is the status indicator which makes *Brilliance* extremely accessible. The status indicator tells you a number of things: such as whether the cursor is currently on the drawing area of the screen, or the cursor's exact location. If the cursor is on any of the tool bar options then the option name is written in the status indicator, below which is written the current 'draw' option. The status indicator is also used to show the progress or dimensions of quantifiable operations, for example the length of a line or the angle of a rotation.




## STRANGE FEELING

Despite the fact that the status indicator is there to keep you well informed, using *Brilliance* feels very alien for a while, and it was only when I had read the accompanying manual from cover to cover that I really began to appreciate the sheer scope of its enhancements over the *DPaint* way of doing things. The manual is very easy to understand, but the tutorials vary between being overly-simplified at the beginning, to ridiculously brief at the end. One particularly frustrating thing was that the author kept referring to complicated features that he had yet to explain.

On the surface, *Brilliance* looks like just about every other Amiga art program. It has the same old drawing tools: freehand, line, rectangle, spray-can, arc and so on. However, *Brilliance* also has a bezier curve option for drawing complex curves (curves which bend in two directions like an 'S' or which describe an arc greater than 360 degrees like a loop). Bezier curves consist of four elements: two end points which represent the start and end of the curve, and two control points which are used to drag the curve into shape. This option is really useful, but for some reason the designers thought it wise to make you position control points when you are initially creating the curve. This is pointless because it means that you're placing the controls with little idea of the exact curve that they'll create. It's a pity that the control points don't exert a bit more pressure on the lines because some curves are almost impossible to create.

One minor, but valuable, feature of the program is the way that all drawing tools, except freehand, automatically use an ink colour that contrasts with the background. It's only when you've confirmed a drawing operation (by releasing the mouse or pressing the right button) that your selected ink colour is used.

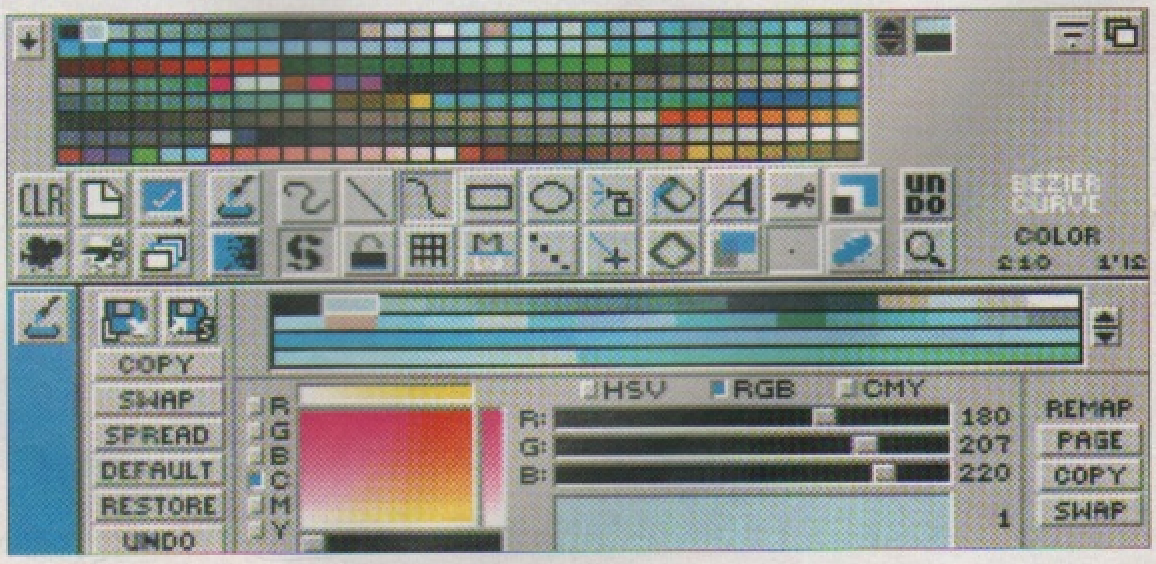
The next new feature in the tool bar is the way that the rectangle and ellipse tools work. You have the usual option to draw rectangles starting from one corner and moving towards the opposite one, and ellipses drawn moving from the centre outwards, but it's nice to have the option of swopping them so that rectangles are drawn from the centre, etc. The latter tool even has the additional option to rotate the ellipse once it's drawn. This is not necessary because *Brilliance* has very flexible brush handling and manipulation options.

## FLEXIBLE BRUSH HANDLING

When it comes to cutting out a brush, *Brilliance* comes out tops again. In rectangle cut mode, the four lines border the area being cut, unlike *DPaint* which simply boxes the area. *Brilliance*'s rectangle cut mode lines extend to the edge of the screen which for some reason makes it much easier to cut a precise rectangle.

In carve cut, you are permitted to cut a freehand shape, rather than defining a shape as a series of short lines. This shape is actually stored exactly as you cut it rather than transforming it into a rectangle as *DPaint* does.

The program can store up to nine brushes at a time; eight in buffers plus the one in use. When a new one is selected from a buffer, the current one replaces it in the buffer. Having chosen a brush to manipulate, the Brush Distort menu contains options to re-size it, flip it, bend or shear it. You can add a single pixel outline or trim a single pixel from its edges. You can also rotate it – another of those tiny, but very significant enhancements. The rotate requestor now allows you to rotate a brush by a specific number of degrees. When the rotation is performed it takes into account the aspect ratio of the original so that distortion doesn't occur when using rectangular pixels (in interlace mode »




Right: The palette requestor lets you create a full spectrum of colours using a choice of three colour models: RGB, CMY or HSV. *True Brilliance* represents these registers as 24-bit data..

## MOVE IT

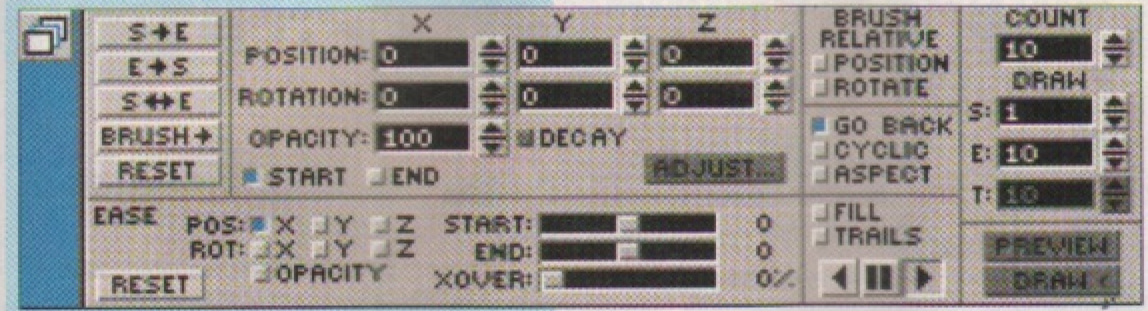
*Brilliance* has some very nice animation features spread across three separate menus. The first of these is the Animation menu and it provides video-style controls so that you can set up and play your animations. The program can replay animations at speeds up to a staggering 99 frames per second, thanks to the fact it uses the new Op-8 Long animation format which is ideal for machines with faster processors. It also supports Op-8 Word and Op-5 Byte formats. The latter is used by *Deluxe Paint* so your files will be interchangeable.

Strangely enough, the program doesn't come with a stand alone replay utility which is a bit restricting, especially with the two newer animation formats.

Anyway, moving along from the animation menu, the Anim Brush menu lets you perform morphs from the current brush to any of the eight brush buffers. It also lets you pick up Anim brushes from an animation you may have created. What makes this section particularly powerful is the fact that you can pick up any number of sequential frames, starting and ending wherever you like within an animation and moving forwards or backwards through it.

However, all of this is just window dressing because *Brilliance* hides its real power away in the Tweening menu. Tweening is the process of getting the computer to calculate animation based upon a couple of key frames that you define manually. *DPaint 3* and *4* both provide limited Tweening, and *Brilliance* takes the concept to entirely new heights.

You can specify both the exact starting and end points of a brush to be animated, as well as any rotations to be performed upon it. You can even specify a brush's opacity




(how solid it appears to be) from one frame to the next. This means that you can create animations where objects fade in or out of view.

As with *DPaint* you can define the 'ease' of a brush's movement (how quickly it gains and loses acceleration), but *Brilliance* takes this considerably further because each can be specified in all three axes and in all rotational axes as well. This means that it's finally possible to create curved and tangential movement paths.

Another new feature is the Decay option which when used in conjunction with Trails (which leaves a trails behind of course!) causes the trail to decay to nothing at a user-defined rate.

Perhaps the most significant improvement is a feature called Adjust. This lets you control the movements of your animation in real time, dragging brushes where you like as the animation plays.

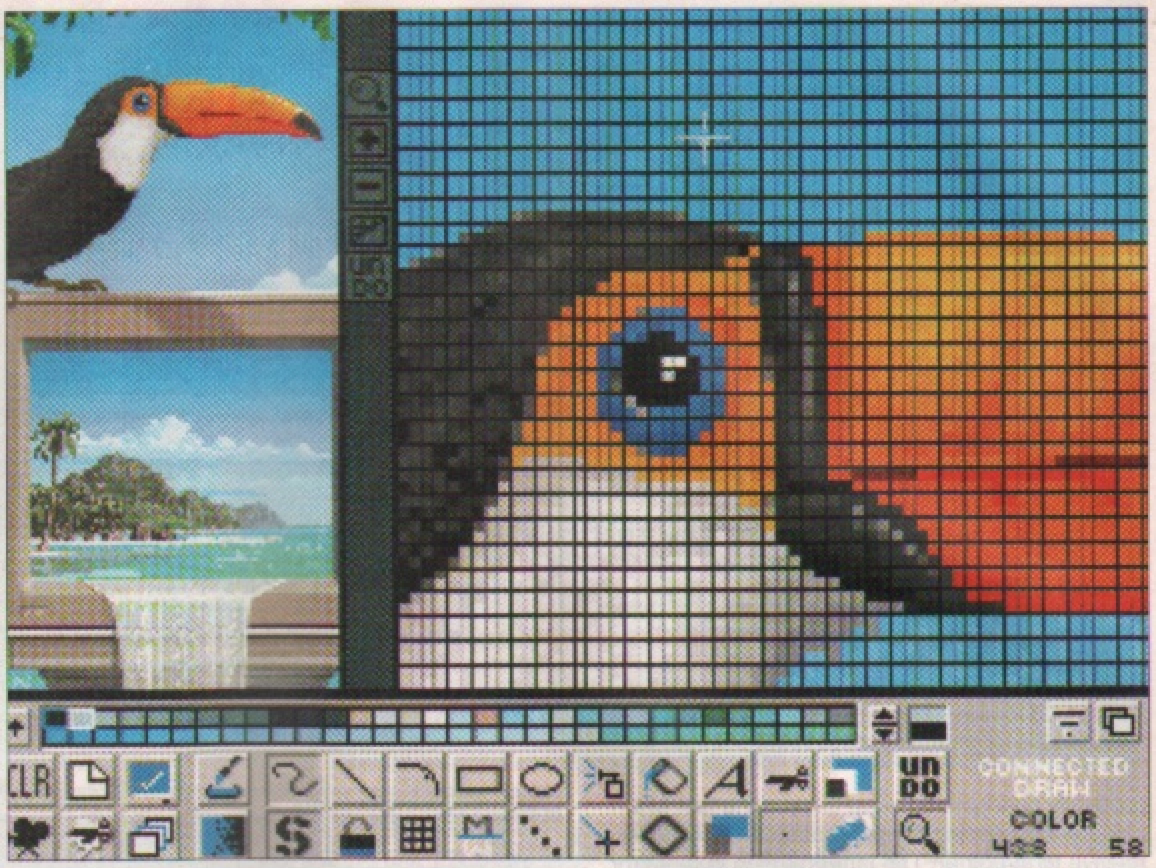
I can't finish the subject of animation without mentioning the frame slider. This is just a slider which you can use to look back and forth through your animation. Nothing particularly shattering, but it's so much nicer than having to step through it frame by frame using the keys.

Speaking of keys, it's worth noting that wherever possible, Digital Creations have kept *Deluxe Paint*'s keyboard shortcuts, so fortunately you won't have to learn them all over again.

## PRINTING ERRORS

*Brilliance* has the most user-friendly and flexible printing section of any Amiga art package. Not only does it allow you to specify the usual stuff such as print density, dither and smoothing control and dump size, it also lets you print your image as a negative or mirror image.

Unfortunately, one glaring error makes the printing section unbearably irritating; there's no way to save your preferences once you've defined them. This means that you are condemned to reset them every single time you load the program. A big black mark against Digital Creation's scorecard for that one!

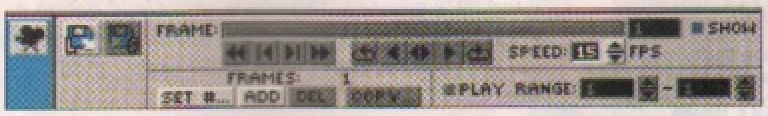


When working in magnify mode, an optional pixel grid makes it much easier to create pixel-perfect drawings.

for example). Such an obvious option, yet one which has been notable by its absence from every Amiga art package to date. This simple option means that you can easily create complex shapes with mathematical precision!

When you choose the 'brush distort' requestor, rather than replacing the tool bar, a new requestor appears below it pushing the tool bar upwards to make room. This means that requestors now occupy over a third of the screen.

You might think that this would be intrusive, but quite the opposite; in fact it's very handy to have the options you're using visible on the screen



whilst you use them. In any case, pressing the space bar makes all the requestors and the tool bar disappear (or reappear) leaving just the screen and the current cursor. If that's a tad too radical for you, you might prefer the collapse menu option which tucks all the requestors back out of sight leaving just the tool bar. A second click brings the same menus back out to play!

## INFORMATION OVERLOAD

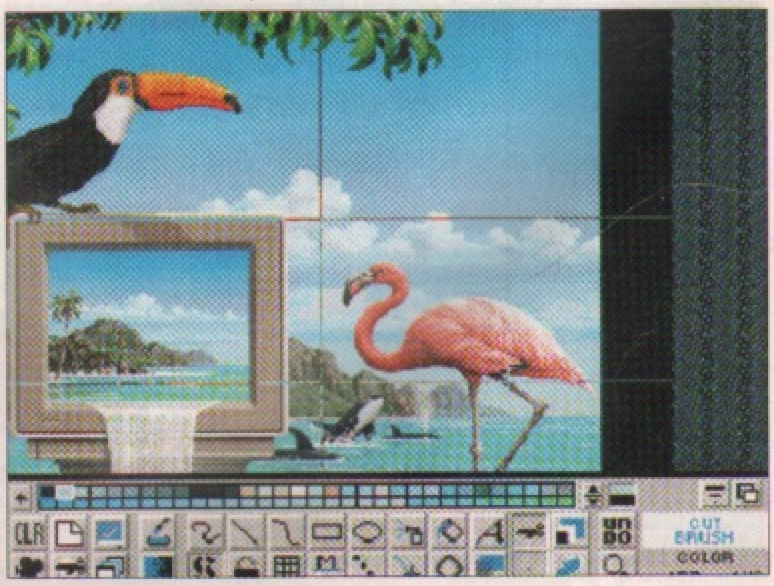
The most confusing new feature of the program is the draw mode menu. The items in this menu affect all the drawing operations, although not every item can be applied to every operation. The default is a pixel mode called 'color'. In this mode, the selected colour is applied with no modification anywhere that the pen, filler, spray can or brush is used. Other pixel modes change either the colour of the existing image or of the ink that's applied to it. For example, tint uses the current ink colour to apply a wash anywhere that ink is applied.

'Cycle' on the other hand, uses the colours in the current range to create multi-coloured effects. If you're drawing lines then they'll be divided into coloured sections; if you're using the spray-can each droplet will be a different colour. There are even some image processing options such as not, negative, lighten and darken.

What makes the draw mode menu so confusing are the multiple conditions that must be met before some of the options can be used.

For example, the perspective-fill mode can only be used if a brush is selected and you're in fill mode and you've already predefined the perspective to be used.

Like *Personal Paint*, *Brilliance* supports both colour and percentage dither modes, in other words graduations from one colour to »



another can either be represented by a pattern of »

## STUNNING STENCILS



For advanced users, a program's stencil mode can save a great deal of time, especially when animating. This is one of *Brilliance*'s great strengths because it has some really clever ways of defining stencils. These vary according to the program you're using (*Brilliance* or *True Brilliance*) but there are some features common to both programs.

In case you don't know what a stencil is for, it can serve two purposes: to protect part of a picture from being changed by drawing operations, or to include only certain parts of a picture in those operations. Stencils are usually defined by choosing certain colours or ranges of colours and then any part of the picture that uses these colours becomes protected by or included in the stencil operation.

The big problem can be in selecting the colours which will be part of the stencil, especially if you have a large palette. The usual way is for the user to click on parts of the image drawn in the required colour or to simply select that colour (if known) from palette. *Brilliance* supports these options but it also provides a number of other novelties. The first of these is called Lasso and, as you may have guessed by its name, it lets you draw a lasso around the colours to be included in the stencil. This is a very easy way of selecting multiple colours in a single operation.

The next option (and my favourite) is to be found in the draw mode requestor. Unlike colour stencils it allows you to draw the area of the picture that you want protected from modification. Therefore if you draw a stencil rectangle on your screen, the area beneath that rectangle cannot be altered until the stencil is freed.

Colours included in the current stencil are shown in the palette as circles so that you can quickly identify the ones that are included and the ones that aren't.

» gradually changing colours, or by using just two colours and altering the percentage of one colour relative to the other. The latter method is great for high-resolution work with a limited palette. Unlike *Personal Paint*, *Brilliance* also provides a full choice of directional, linear and radial fill types, and these can be made responsive to the shape being filled if required.

## INTELLIGENT GRADIENTS

One of the more important sections of the program is the gradient requestor for this is where you will define any colour ranges to be used. Colour ranges are important when using the various cycle options, to say nothing of their primary function which is to create dithered fills. Like most range requestors, a range may be defined by placing two or more colours from the palette onto a grid. The program then automatically calculates the transition from colour to colour.

Yet again, Digital Creations have added their own touch of inspired magic to the requestor in the form of several very useful enhancements. For starters, you can define what's known as a 'spread'. The spread represents the number of colours that will be used at each step of a colour range. For example, if the spread is set to three, two adjacent colours on the colour rack will take three colours to graduate from one to the other. If the same colours are placed one step apart (with no other colours between them), the transition will use six colours. When defining a range for the purpose of colour cycling, you can even use colours in the spreads, that don't exist in the normal palette.

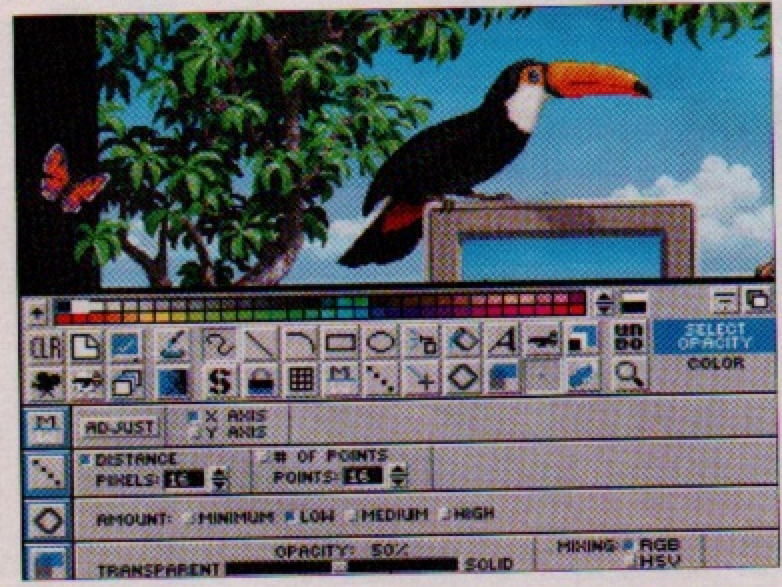



The gradient requestor is incredibly powerful and it even lets you define colour cycle ranges using colours that aren't even in the palette.

The other neat feature is known as 'hard edges', and it allows you to define certain colours in a spread which will not be dithered when a graduated fill is created. Therefore, you could define a range from black to red to blue to white and specify that the red/blue part of the dither range should have a hard edge. The black to red and blue to white sections will be dithered as normal, but there will be a perfectly sharp edge where the red changes to blue. Unfortunately, this option is not particularly stable due to some sort of programming bug.

If you use magnify mode very often you'll doubtless appreciate the program's grid option which is particularly useful when copying from paper if you're working on large areas of a single colour, or if the magnification level is very low.

The Opacity option means that animators can finally create fade effects with ease. In fact the program's animation features are a major improvement over *DPaint*'s way of doing things.



## CONCLUSION

Many of the improvements in *Brilliance* are quite subtle, but extremely significant in terms of user-friendliness and power. The animation and tweening requestors are extremely powerful making this the art package of choice for video users. Never before have fades been so easy to create. Having to swap programs when you move from HAM to ordinary mode is a bit inconvenient, especially for floppy disk users, and I'm not entirely certain why Digital Creations created the programs like this.

The program requires a minimum of two megs of RAM to run, but if you're working on an AGA machine in HAM mode you won't be able to achieve anything unless you have three megs or more.

It's very hard to express why I'm so taken by *Brilliance*, there's just a feeling of 'rightness' about the way that it works. If it weren't for the dongle-protection system, I would immediately delete my copy of *Deluxe Paint* and replace it with *Brilliance*.

As it is, the inconvenience of having to plug the dongle in each time I need a graphics package prevents me from doing this immediately.

This inconvenience is a real shame because, as far as I'm concerned, *Brilliance* is now – leaving *DPaint* trailing in its wake – the best art package available for the Amiga. CU

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**G10 - POM POM GUNNER** - Great graphics in this Terminator 2 style shoot em up.
**G043 - WIBBLE WORLD GIDDY** - Superb platform game. The best public domain game ever.
**G048 - TANX** - Addictive tank V tank action, in the style of the BBC classic.
**G048 - NEIGHBOURS** - (2 disks) Best graphic adventure ever available in PD.
**G049 - FIGHTING WARRIORS** - Budget version of Streetfighter 2 with excellent graphics. Limited options is the only thing that lets it down.
**G050 - BOMB JACKY** - The Spectrum classic with good graphics and music.
**G044 - ELEVATION 2** - Great sequel to the original.
**G046 - PETERS QUEST** - Good platform game.
**G047 - SUPER PAK MAN** - If you like PAK games then get this disk!!!
**G052 - CURLY SUE** - A first rate cute platform game.
**G053 - CURLY SUE 2** - Sequel to the all time best selling public domain platform game.
**G054 - JETMAN** - A spectrum classic converted to the Amiga with better sounds and graphics.
**G040 - PARADOX** - A funky puzzle game.
**G039 - SMURF HUNT** - One of the better games produced with the shoot em up construction kit.
**G055 - TEXAS CHAINSAW MASSACRE** - Good cut em up, but gets a little repetitive
**G051 - BALDERS GROOVE** - Boulder Dash type game.
**G011 - AIR ACE 2** - Excellent graphics. Another made with the shoot em up construction kit.
**G028 - PIPELINE** - Popular game, compatible but too fast on A1200.
**G015 - MEGABALL** - Excellent futuristic game based on squash. The aim is to hit all bricks away by deflecting the ball.
**G056 - 18 HOLE GOLF** - First ever public domain golf game. (2 Disks)
**G057 - SPACE INVADERS 2** - A revised version of the classic Spaceinvaders.
**G058 - RESCUE** - A game like Scramble with good graphics.
**G059 - AMOS CRICKET** - For fans of the sport only.
**G060 - TRON II** - If you liked the original Tron then don't miss this update. Faster and improved presentation.
**G061 - ESCAPE** - The aim of this excellent game is to run over tiles pushing specific ones down to open gates. You must get to the exit within a certain time to progress.
**G062 - DR MARIO** - Very simular to the Nintendo versions of a simular named game but better graphics.
**G063 - ASSAULT** - This average game involves you shooting all the characters that pop up in the windows. Well presented but lacking playability.
**G064 - DEATH BINGERS IN SPACE** - A Xenon style shoot em up which are very common in PD.

### UTILITIES

**U012 - CATALOGUE MAKER** - Lots of useful utilites that can be used for addresses, your video library or disk library etc. Includes listmaker V4.2 (2 disks)
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**U196 - DRAW MAP V4.1** - There are two versions, please state or . It allows you to create 2D or 3D maps.
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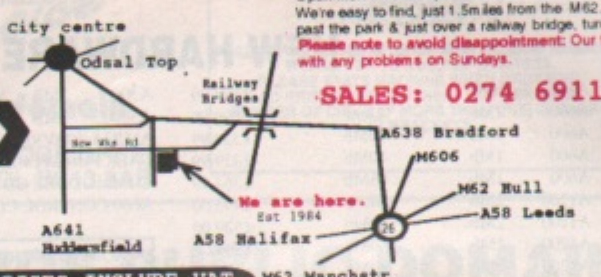
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**OFFICIAL ORDERS FROM GOVERNMENT & EDUCATIONAL ESTABLISHMENTS WELCOME.**



PRICES WERE CORRECT AS OF 29-07-93, but as our crystal ball is broken, some may have changed by the time you read this, due to currency fluctuations & manufacturers/ suppliers price increases. We do make mistakes from time to time too ! All registered Trademarks are acknowledged. Callers are most welcome but please phone first to check availability & avoid disappointment - we try to keep most items in stock unlike some of our competitors and will gladly put items aside for you to collect, but shortages of some items do occur from time to time.

## AMIGA 1200 WITH HARD DRIVE FITTED

| | | WITH CUBSCAN MONITOR SAVE £24. |
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| A1200+40MEG HD | £439.99 | SPECIAL OFFER £849.99 |
| A1200+80MEG HD | £499.99 | £899.99 |
| A1200+120MEG HD | £599.99 | £999.99 |
| A1200+210MEG HD | £699.99 | £1099.99 |

ANY A1200 COMPLETE WITH BATTERY BACKED CLOCK - ADD £20.00

PRICES INCLUDE 2YR EXTENDED WARRANTY

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Inc TROLLS & NIGEL MANSELLS GP £289.99. (1YR WARRANTY)

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PLEASE PHONE FOR LATEST PRICES & SPECS
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(Normally £699.99. 386 card also available)

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## AMIGA CD32 DUE IN SOON £289.99

## AMIGA 500 CARTOON CLASSICS

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- 1MEG RAM
- MOUSE
- TV MODULATOR
- WORKBENCH 2.04

PLUS
- LEMMINGS
- CAPTAIN PLANET
- THE SIMPSONS
- DELUXE PAINT 3

FEW ONLY AT £194.99

## FIT A HARD DRIVE TO YOUR AMIGA 600 OR 1200- its EASY WITH OUR ILLUSTRATED GUIDE

HURRY - WORLDWIDE STOCKS OF SMALL DRIVES (<120MEG) EXHAUSTED SOON & PRICES WILL RISE.

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| 40MEG only | £129.99 |
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| 80MEG only | £199.99 |
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**PRICE INCLUDES:** READY FORMATTED & PARTITIONED 2.5" IDE DRIVE; DRIVE CABLE; FULL FITTING INSTRUCTIONS & FIXING SCREWS + LEGAL FORMATTING DISK & RECOVERY HINTS.

FITTED FREE while U wait if you take out an extended warranty at the same time. Otherwise £15.00 fitting charge.

MAILORDER COLLECTION, FITTING & DELIVERY SERVICE JUST £19.99

FIT A HARD DRIVE YOURSELF - IT'S EASY AND WITH OUR 2 OR 3 YEAR WARRANTY PLANS, YOU'RE COVERED FOR BOTH BREAKDOWNS & ACCIDENTS.

OUR Specially Negotiated LOW COST NO FUSS Warranties cover *BOTH* COMPUTER & DRIVE FROM ONLY £27.99

* COMPUTER & DRIVE BOTH COVERED
* ACCIDENTS AS WELL AS BREAKDOWNS COVERED
* COVERED EVEN IF DRIVE FITTED BY PURCHASER.
* COVERED EVEN IF COMPUTER NOT PURCHASED FROM US
* VERY FEW EXCLUSIONS
* UNDERWRITTEN BY A LEADING UK INSURANCE Co.

COMPUTERS UPTO £600 - £27.99 for 2yrs or £42.99 for 3yrs.
COMPUTERS UPTO £999 - £32.99 for 2yrs or £67.99 for 3yrs.

Not available for Business users- Exclusions:- theft; wilful damage; cosmetic damage - full written details on request. These are Return to Base warranties. Computer must be under 6 months old. Computer value used to calculate warranty cost must include cost of internal hard drive.

WHY NOT COVER YOUR AMIGA 500, 600, 1200STANDALONE OR 4000 - the prices above apply. Monitors & printers can also be covered -poa.

*DON'T BE WITHOUT A WARRANTY......*

Commodore have told us that their On-site warranty will not apply if the Warranty seals are broken by ANYONE including dealers.

## PRINTERS

**CITIZEN SWIFT 90 COLOUR £179.99** — 9pin; Upto 240cps in high speed draft & 54cps NLQ printing speed. 6 NLQ built-in fonts. Friction & tractor feeds. Paper park. Low cost ribbons. 2 year warranty. Epson FX850 & IBM Proprinter III emulations. Low noise level, + 'quiet mode'.

**CITIZEN SWIFT 240 COLOUR £284.99** — 24 pin; 240cps draft & 80 cps letter quality print speed. 9 fonts, 2 scalable fonts. Paper parking, push & pull tractor feed, friction feed. Epson LQ570, NEC P20 & IBM emulations. Ultra low noise level, + quiet mode for even lower noise. 2 year warranty. 128K RAM EXPANSION £33.99

**STARTER PACK only £4.99.** COMPRISES 1.8M printer cable & Driver disk (Where available)

**HP DESKJET 550 COLOUR £679.99** — Superb hard to get 300DPI Colour inkjet for laser - like quality. A4 paper size; prints on OHP film & envelopes too.

**HP DESKJET 510 £339.99** — Superb low cost 300DPI inkjet for laser -like quality. A4 paper size; prints on OHP film & envelopes too.

**CITIZEN SWIFT 200 £209.99 COLOUR MODEL £244.99** — 24 pin, Very similar to the 240, but slower & fewer fonts. Availablein mono or colour versions. 128K RAM EXPANSION £33.99

### PRINTER ACCESSORIES

| | |
|---|---|
| AMIGA PRINTER CABLE 1.8m £9.99; 3m | £12.99 |
| AMIGA PRINTER CABLE 5m £14.99; 10m | £19.99 |
| 25way M-M or M-F EXTENSION CABLE 2m | £10.99 |
| UNIVERSAL PRINTER STANDS £5.99; & | £10.99 |
| RIBBON REINKING SPRAY - BLACK | £11.99 |
| SWIFT 1200/9/90/200/240 BLK RIBBON | £4.99 |
| SWIFT 9/90/200/240 COLOUR RIBBONS | £15.99 |
| PROJET INK CARTRIDGE ....... | £13.99 |
| INKJET REFILL SYRINGES BLCK, 2 FOR | £14.99 |
| CONTINUOUS LABELS, 1000x1.5"X3.5" | £7.99 |
| CONTINUOUS PAPER 60GRM 2000 SHEETS | £21.99 |
| 2WAY PRINTER SHARER ........ | £29.99 |
| 3WAY PRINTER SHARER ........ | £33.99 |
| 4WAY PRINTER SHARER ........ | £34.99 |

For sharing one printer with several computers Fitted with 36way sockets- Prices include 2m 36way Printer to switch cable.

**CITIZEN PROJET INKJET £399.99** — 300dpi Laser quality 50 nozzle INK jet printer. Fast & very quiet. 360cps draft & 240 cps letter quality print speed.Three letter quality fonts + optional font cards. HP Deskjet Plus emulation. Optional 128k & 256k ram cards. 100 sheet automatic feeder. Ink cartridges £13.99

**SEIKOSHA OP 104 LASER PRINTER £559.99** — Four page per minute; HP Laserjet IIP emulation; 300x300 DPI; 1yr on site warranty. **Postscript version with 2meg ram £849.99**

**RICON LP1200 LASER PRINTER £799.99** — 6 pages / minute; PCL5 with scalable fonts; upto 400dpi resolution (300 standard, 400 requires extra 2meg ram); 2meg ram as standard; straight paper path; resolution enhancement; flash rom for downloading new firmware; IC card slot for flash roms; serial & parallel ports; 1 yr on-site warranty.

## AMIGA 1200 UPGRADES

**A1200 INTERNAL CLOCK MODULE - £22.99**

Plus into internal socket (not fitted to all 1200s)- fitting invalidates warranty. BATTERY BACKED.

**AMIGA 1200 FAST RAM CARDS**

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|---|---|
| A1200 PCMCIA 2 MEG 16BIT FAST RAM | £149.99 |
| A1200 PCMCIA C 4MEG 16BIT FAST RAM | £224.99 |

**AMIGA 1200 32BIT 4MEG + CLOCK £179.99**

**GVP A1230 TURBO MEMORY BOARDS**

Includes 68030 running at 40MHz; 68882 socket for FPU. Has two 32bit simms skts.

| | |
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| With no fpu & 0meg ......... | £244.99 |
| WITH 4MEG & 68882 ............ | £479.99 |
| WITH SCSI I/FACE ............. | POA |

32BIT SIMMS FOR MBX / GVP / A4000 ETC. POA

## AMIGA 500 HARD DRIVES

FURTHER REDUCTIONS ON SOME ITEMS

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| GVP HD8 FOR A500 & 500+ - NO DRIVE | £184.99 |
| GVP SERIES II HD8+ 42 Meg for A500 - PRICE DOWN - | £244.99 |
| GVP SERIES II HD8+ 80 Meg for A500 - PRICE DOWN - | £345.99 |
| GVP SERIES II HD8+ 120meg for A500 - PRICE DOWN - | £389.99 |
| GVP SERIES II HD8+ 210meg for A500 - now only | £575.99 |

The HD8 series II can accept either 1 or 2 or 4, 1 meg simms; OR two, 4 meg simms.

| | |
|---|---|
| GVP SERIES II HC8 for A1500/2000 - NO DRIVE | £119.99 |
| GVP SERIES II HC8 + 42meg for A1500/2000 | £285.99 |
| GVP SERIES II HC8 + 80meg for A1500/2000 | £334.99 |
| GVP SERIES II HC8 + 120meg for A1500/2000 | £409.99 |
| GVP SERIES II HC8 + 210meg for A1500/2000 | £559.99 |

*The HC 8 Series II can accept upto 8, 1meg x9 Simms in 2 meg steps.*

| | |
|---|---|
| GVP A530 COMBOS with 42Mb drive | £475.99 |
| GVP A530 COMBOS with 80Mb drive | £575.99 |
| GVP A530 COMBOS with 120Mb drive | £677.99 |

1MEG *9 SIMMS FOR GVP DRIVES
1MEG 32 BIT SIMM ............
4MEG x8 SIMMS FOR GVP DRIVES
4MEG 32BIT SIMMS FOR A530 ..

Please note, due to a shortage of memory chips & simms, prices are rising daily - please phone before ordering.

A590 & GVP SCSI DRIVE UPGRADES.
42MEG £139.99 EASY TO FIT

## EMULATORS & ACCELERATORS

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| VORTEX AT ONCE PLUS 286 PC EMULATOR FOR A500 | £99.99 |
| GVP PC286 PC EMULATOR CARD FOR SERIES II HARD DRIVES | £99.99 |
| GOLDEN GATE 386SX PC CARD FOR A1500/2000 | £399.99 |
| GOLDEN GATE 486SX PC CARD FOR A1500/2000 | £699.99 |
| OPTIONAL DRIVE CONTROLLER CHIP FOR GOLDEN GATE | £34.99 |
| IIT 80387SX25 CO-PROCESSOR FOR GOLDEN GATE | £89.99 |
| G-FORCE 030/25MHz FOR A1500/2000 others available | £479.99 |

## COLOUR MONITORS

FULLY COMPATIBLE, WE BELIEVE, WITH ALL AMIGA1200 VIDEO MODES

**CUBSCAN 14" MULTISYNC COLOUR MONITOR** — THE BEST

* Hi res dot pitch of 0.28mm.
* Antiglare 14" hi-brightness screen.
* Digital memory sizing - for *automatic* borderless display in all Amiga modes.
* All controls at front.
* SVGA compatible for PC use.
* 15-40KHz horizontal scan rate.
* 45-90Hz vertical scan rate.

NO BLACK BORDERS

NOW ONLY £439.99 INC AMIGA LEAD
OR £489.99 WITH SUPERFI 2 STEREO SYSTEM

**PHILIPS CM8833mk2 ONLY £229.99**
- 14" SCREEN
- STEREO SOUND
- RGB & COMPOSITE INPUTS
- ON SITE WARRANTY
- LOTUS TURBO CHALLENGE
- OFFICIAL UK MODEL
- CONNECTING LEAD FREE

**COMMODORE 1084S £199.99**
- 14" SCREEN
- STEREO SOUND
- RGB & CVBS INPUTS
- SUPERB PICTURE
- AMIGA LEAD FREE

**COMMODORE 1942**
14" DUOSYNC COLOUR MONITOR WITH STEREO SOUND £389.99
COMMODORE 1940 MONITOR £294.99

### MONITOR LEADS & ACCESSORIES - LARGE RANGE AVAILABLE.

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| AL1 - MOST TVs WITH SCART SOCKET TO ALL AMIGAS inc sound lead | £13.99 |
| AL7P CM883/1084S MONITOR TO ALL AMIGAS inc sound lead | £14.99 |
| AL11 9PIN MALE MULTISYNCS LEAD TO ALL AMIGAS | £12.99 |
| AL12 15PIN FEMALE 3ROW Some multisync monitors TO ALL AMIGAS | £14.99 |
| AL13 15PIN MALE 3ROW Some multisync monitors TO ALL AMIGAS | £14.99 |
| PRODUCTIVITY LEAD FOR MULTISYNC MONITORS | £19.99 |
| MODULATOR EXTENSION LEAD - eliminates modulator overhang | £10.99 |
| MODULATOR SPLITTER - CONNECT MODULATOR & MONITOR AT SAME TIME | £16.99 |
| MONITOR SWIVEL BASE FOR 14" MONITORS & TVs £10.99 HEAVY DUTY | £12.99 |

MONITOR LEADS MADE TO ORDER - PLEASE PHONE FOR PRICE

## A500 MEMORY UPGRADES

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| A500 / 500+ 1/2meg upgrade without clock | £POA |
| A500 / 500+ 1/2meg with clock & battery | £POA |
| A500+ 1MEG UPGRADE ......... | £POA |
| AMIGA 600 1meg upgrade + clock - now only | £POA |

## EXTERNAL DISK DRIVES

ROCLITE RF382av 3.5" EXTERNAL DRIVE £64.99
WITH ANTIVIRUS & ANTI CLICK FEATURES. RRP £79.99
OR WITH NEW XCOPY PRO £94.99
CUMANA CAX354 £64.99

POA -Please phone for price

# Genlock Jungle

**Professional Video Producer, David Strelitz, tests two budget-priced Genlocks that enable you to combine computer graphics with video.**

As video cameras become cheaper, more and more users are discovering that computers can enhance their home videos with spectacular titles and animated graphics.

And the Amiga is one of the best computers around for you to spice up your home videos as they have an established international reputation as value-for-money video tools. Everything from wedding videos to TV programmes can all been done on the Amiga.

The Amiga is so popular as a video tool because titles and graphics can be produced in thousands of colours and the range, size and style of fonts are endless. Artwork prepared on a paint package, such as *DeluxePaint* or customised clipart, can all be incorporated within a video.

If you want these brilliant effects for your home video productions, then all you need is a Genlock to mix the signals. Genlocks are either external units or internal cards and range in price from £50 – £2000. Some only allow software control from keyboard operation, others have processors and faders to allow colour control as well as fading of picture, graphics or both.

How a Genlock operates is that it will make one colour invisible to the incoming video source. This is the *key* colour. Once a video signal is fed through the Genlock, the key colour will be replaced by the video picture. Budget models normally key to the background colour (colour 0) while more expensive units key to both foreground and background colours.




There are many variations within the software packages available as to how they introduce graphics to the screen. Some programmes, such as Scala, have wipe patterns or variable scrolls. Computer graphics may be either titling, captions or artwork usually in IFF Page or Brush form. Many software-controlled fades are jerky and so the ability to fade graphics from the Genlock is a positive advantage.

Genlocks also offer smoother transitions as well as more flexibility over the switch-in, switch-out type units.

I tested two units from the budget end of the market which are aimed at the video user who wishes to add a more professional look to his work. Both units were from Lola Electronics and were UK designed and manufactured. Here's what I thought about them both.

## MINIGEN L500

More than 15,000 of this budget-priced unit, costing £49.95, have been sold since 1989, which is an indication of its popularity. It is almost identical in size to the A520 RF modulator and has two phono sockets for composite Video In and Out.

A three-way switch on top enables the selection of graphics, video or mix. If no video signal is fed to the unit it defaults to local mode and acts as an RF modulator displaying the computer output. To display graphics, you have to toggle the selector switch between picture and mix. I found this annoying as I had to go to the back of the machine to operate it. But even more annoying was that once the Minigen L500 is in place there isn't any provision for the computer output to be displayed continuously.

Anyone with a RGB monitor will not be able to use them unless they are re-connected from the composite Video Out of the editing recorder, to the Video In of the monitor.

When the Minigen L500 is connected and a video source is sent, the computer picture is only available by selecting graphics with the toggle switch. A 23-pin extension cable is available as an optional extra (£14.95) enabling either the Minigen L500 or RF modulator to be positioned at the side of the computer.




Over 15,000 Minigens have been sold – it's a Genlock and under £50.

## MINIGEN PROFESSIONAL




This unit is housed in a black metal case 260mm x 180mm x 55mm and comes with a 23-pin connecting cable which links it with the Amiga RGB port. The RF modulator or monitor cable is replaced in the Genlock, re-establishing monitor output from the computer. The Genlock is powered from the Amiga via the connecting cable. No other power supply is needed. At the back of the Genlock there are industry standard BNC sockets for Video In/Out.

The top panel contains three selector buttons, each with LED indicators, for video, graphics or overlay. There is also a fourth LED to show the default mode (computer output) when no incoming video signal is present and a sliding fader to bring in graphics when overlay is selected.

This fader, which has graduated markings showing 0%, 50% and 100% mix level, is beautifully smooth to use and allows graphics to be mixed in and out as required.

It performed well. The selector buttons enable switching between graphics, video or overlay without picture disturbance. The Minigen Professional

### WHAT IS A GENLOCK?

A Genlock is a piece of hardware that is either connected externally or as an additional internal board. Video signals fed to it, can be overlayed with the computer output, enabling titles or graphics to be mixed with a video picture. This new mixed output can then be re-recorded or displayed on a TV monitor.




To edit video, the source tape must be played from one machine and the required sections re-recorded onto another. This causes some signal loss which is known as generation loss.

Any equipment connected between player and recorder must be transparent to the signals to avoid additional loss.

All connecting leads should be of high quality (RG59U cable for composite video) as cheap thin leads will only cause further signal loss.

The *Minigen L500* connection showed a noticeable picture deterioration and a tendency for computer colours to be a slightly different hue as well as being desaturated colour dilution.

Both units tested had only composite Input/Output which is not ideal for S-VHS (See Video Signals box out)

Genlocks at the top end of the market can cost up to £2000 so what do you get for fifty quid? You get a few pence change and a unit that will overlay graphics satisfactorily.

The occasional user filming on VHS or Video 8 who doesn't mind diving round the back of the computer when the need arises will be very pleased with his £50 Genlock. The more serious user should read on!



## TITLING TIPS

Always use high resolution non-fancy fonts with anti-alias where possible. This will avoid 'jaggies' or stepped edged and they will 'hold together' better on VHS. Don't use ANY colours at full strength, except black, particularly red and blue as they will bleed (spread across the screen).

Use white when you are using smaller fonts as with end credits. Watch how many broadcasters do! Black outlines alleviate colour bleeding. Don't use a Genlock with poor-quality pictures. Very few Genlocks will work acceptably with inferior signals. Genlocks will alter the computer centring due to timing changes. Re-adjust using Preferences from Workbench. Amiga computers have a 'feature' when connected to Genlocks which allows it to boot-up in NTSC thus making the bottom 20% of the screen in active boot-up when the scrolling horizontal bar, visible in the overlay position reaches the top of the screen.

## ADDRESS BOOK

LOLA ELECTRONICS LTD 4 BRAYBROOKE ROAD LITTLE BOWDEN MARKET HARBOROUGH LEICESTERSHIRE LE16 8AD

## MINIGEN L500 £49.95

A500 ✓ A500+ ✓ A600 ✓ A1200 ✓
A1500 ✓ A2000 ✓ A3000 ✓ A4000 ✓

**LOLA ELECTRONICS LTD, 4 BRAYBROOKE ROAD, LITTLE BOWDEN, MARKET HARBOROUGH, LEICESTER LE16 8AD.**

**EASE OF USE** 70%
*It's extremely simple to connect and very easy to use.*

**VALUE FOR MONEY** 80%
*Wow something that costs under fifty quid and it actually works.*

**EFFECTIVENESS** 80%
*For background keying and simple captions it does the job fine.*

**FLEXIBILITY** 30%
*The loss of monitor output is an annoying factor in the L500's flexibility.*

**INNOVATION** 75%
*It's very basic but this factor is due to its low price.*

*"This Genlock is probably best suited for the novice or the occasional user."*

**OVERALL 75%**

## VIDEO SIGNALS

Much confusion arises over the signals used in video. RF signals which use coax connectors are tuneable from VTR or TV tuners but should not be used for editing or copying. Composite video signals use BNC connectors or phono connectors and have Luminance (black and white) and Chroma (colour) combined with a sync signal. The Scart provides an RGB signal which is used to allow improved picture quality on suitable TV/monitors. 4 pi 'S-Video' connectors are used on S-VHS and Hi8 to provide separate luminance and chroma referred to as Y/C. The separate signal paths enable higher resolutions to be maintained during editing or copying. If the signal is processed as composite by using a mixer or Genlock without 'S-Video' connections this advantage will be lost.

has only composite video inputs/outputs. S-VHS or Hi8 users will not get the full advantage of Y/C signal processing. (See *Video Signals*)

A comprehensive instruction manual is included with this unit which was easy to use and understand. Picture deterioration was considerably less than the *L500* but as with so many lower priced Genlocks, computer colours were noticeably diluted.

A picture control processor is available as an optional extra LOLA PVP1000 £129.95allowing adjustment of colour brightness and picture enhancement.

## CONCLUSION

Both units worked reasonably well. The *L500* is very basic and is priced accordingly. The *Minigen Professional* offers better quality and a very useful fader to mix graphics and video at will.

However, serious users and those wishing to preserve S-VHS quality will have to look further afield and spend considerably more to maintain higher quality. CU




**The Minigen Professional is well constructed and gives good results. However as it only has background keying and no 'S' terminals, it may deter serious users and semi-pros from purchasing.**

## MINIGEN PROFF £149.95

A500 ✓ A500+ ✓ A600 ✓ A1200 ✓
A1500 ✓ A2000 ✓ A3000 ✓ A4000 ✓

**LOLA ELECTRONICS LTD, 4 BRAYBROOKE ROAD, LITTLE BOWDEN, MARKET HARBOROUGH, LEICESTER LE16 8AD.**

**EASE OF USE** 88%
*Simple to use with noise-free switching and smooth fading of graphics.*

**VALUE FOR MONEY** 90%
*Not bad value but its a shame that foreground keying is not included.*

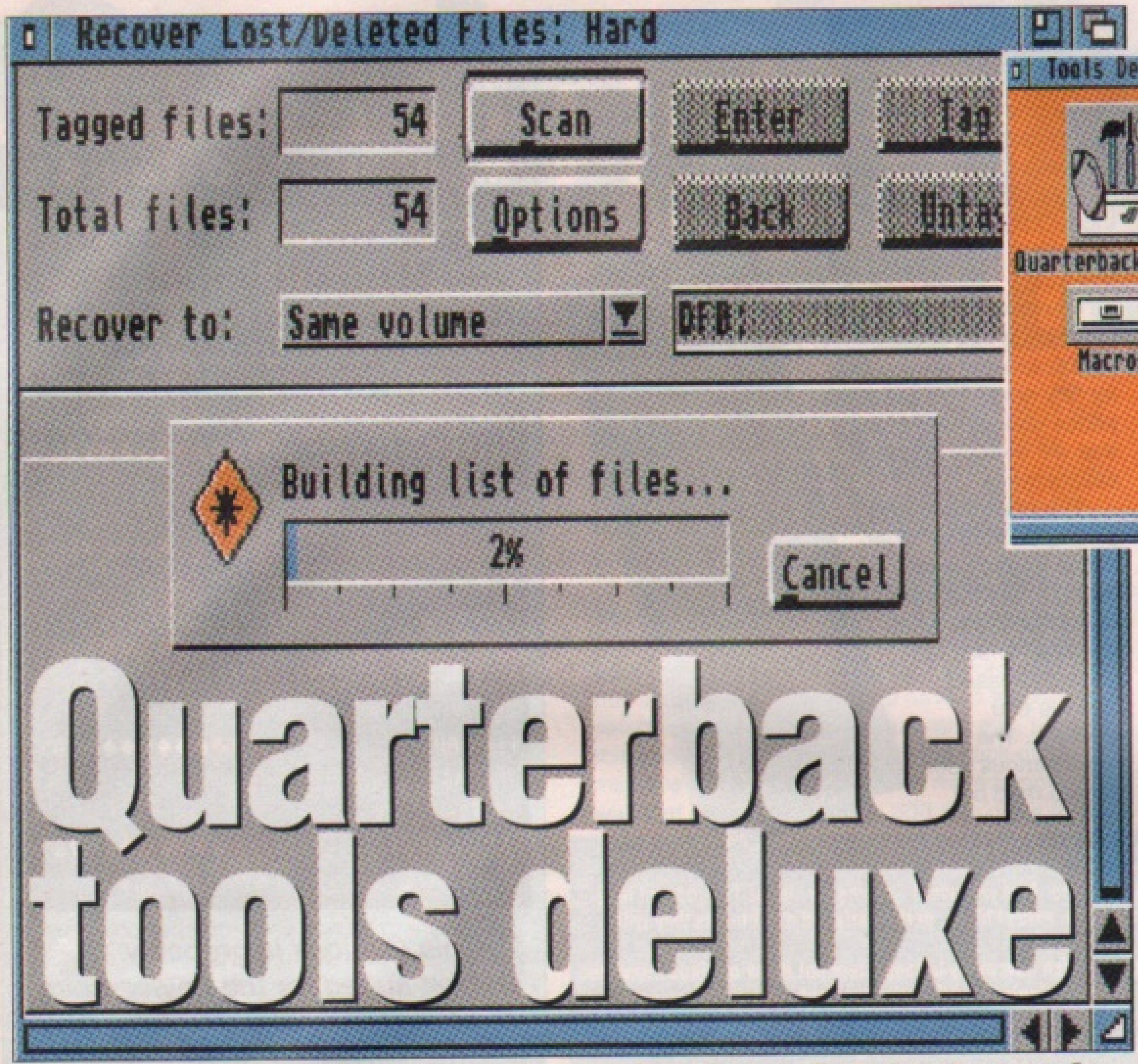
**EFFECTIVENESS** 85%
*Works well despite slight chroma variations.*

**FLEXIBILITY** 85%
*Has monitor output so it can be left permanently connected.*

**INNOVATION** 90%
*It looks smart and well designed but needs 'S' terminals for the serious user.*

*"Effective... but you have to pay a lot more for foreground keying and S terminals."*

**OVERALL 88%**




# Quarterback tools deluxe




*Quarterback Tools Deluxe* is undoubtedly the best disk repair and maintenance system available for the Amiga.

**When a floppy bites the dust, don't panic! Just reach for the best disk repair software around. Mat Broomfield prepares to operate.**

*Quarterback Tools* has long enjoyed a reputation as one the Amiga's foremost disk repair and data recovery programs. Developed by Central Coast Software (a division of New Horizons) the program has undergone constant revision. And, now we have the new updated version; *Quarterback Tools Deluxe*.

The basic program is divided into four sections: The first section, 'Analyze and Repair Volume' can be used to check and repair the entire contents of a floppy disk or hard drive.

This section can be used to detect and rectify a variety of faults ranging from individual checks and errors to major virus damage.

The second section, 'Recover Lost/Delete Files' is worth its weight in gold because it enables you to recover files which have been inadvertently deleted. If you delete an important file accidentally, you only have to use this program just once to recover any invaluable data and it will have paid for itself.

If your floppy disks are groaning under the weight of data you've squeezed onto them then the 'Optimize' option is one way of recovering the performance that they may have lost. It simply reorganises the data on your disks so that the drive can always read at maximum efficiency. The result of this is that all disk operations will be faster and any grinding noises (caused by the heads tracking across the disk) will be greatly reduced, if not eliminated altogether.

The final section is a disk sector editor which can examine and alter the contents of any sector on a disk. This is very much a tool for the advanced user and great damage can be done by amateurs who 'tinker' about with this section.

## PROTECTION RACKET

*QBT* Deluxe contains a couple of options to protect your data both from prying eyes and your own carelessness. The first option is called Encryptor and can be used to encode any data in such a way that it can't be decrypted without the original password.

Therefore, if you use it to scramble a text file for example, the file will be turned into gibberish and a password of your choosing will be included in the gobbledygook junk file. The text file can only be read again by running it back through *QBT*'s Encryptor and entering the correct code word.

Brain Cloud is another nifty option which is applied to a DOS disk to protect its contents from accidental erasure. Although the disk stay s in DOS format, you can neither delete individual files nor reformat the disk until the Brain Cloud has been lifted.

## WHAT'S NEW?

So far, the options we've looked at were present in earlier versions of the program. However, what really makes this program exceptionally useful is the collection of entirely separate programs that accompany it on the disk.

Disk and File Eraser are two programs whose sole aim is the total erasure of data. You might ask why you need such a program when the Amiga has DOS commands to do a similar thing? Well, the truth of the matter is, the DOS commands don't really erase the data from a disk; they simply change the directory listing so that 'erased' data no longer registers.

The *QBT* Disk and File Erasers work in a different way. Not only do they delete any references to a file in the directory listing, but they also over write the space that the file used to occupy with a repeating number of your choice.

Keystroke Finder is another program that I find particularly useful. It allows you to find out which keys to press to produce a particular character. A chart is displayed containing every printable character and if you click on any character with the mouse, the program displays the keystrokes necessary to generate it. The ASCII and HEX values for the character are also displayed.

System Mover copies system files to disks. It can handle the following system files: Fonts, Devs, Libs, Printers, Keymaps, Handlers, CLI Commands and CLI Scripts.

## CONCLUSION

*Quarterback Tools* used to be a program that you didn't know you needed until something went wrong. Now thanks to the new programs on the disk, it's virtually invaluable even when everything's running smoothly.

**CENTRAL COAST SOFTWARE £69.99**

A500 ✓ A500+ ✓ A600 ✓ A1200 ✓
A1500 ✓ A2000 ✓ A3000 ✓ A4000 ✓

**First Computer Centre, Unit 3, Armley Park Court, Stanningley Road, Leeds, LS12 2AE. Tel: 0532 319444.**

**EASE OF USE** 85%
*Not completely self-explanatory but pretty straight forward once you get started.*

**VALUE FOR MONEY** 65%
*Even at £60 discount I feel that this is a bit on the pricey side.*

**EFFECTIVENESS** 80%
*The speed increase varies with different software, but most applications benefit hugely.*

**FLEXIBILITY** 90%
*Loads of interesting programs and dozens of options for each of them.*

**INNOVATION** 50%
*Nothing particularly innovative, but each element is done well.*

*"Essential insurance for anyone who uses their Amiga for business."*

**OVERALL 80%**

Power Computing's latest 32-bit memory expansion for the Amiga 1200 is now available. The PC1208 combines exceptional value with incredible features. The original PC1204 4MB 32-bit memory expansion is still available, and is exceptional value.

**SIMM Technology** - The PC1208 uses the latest industry standard 32-bit SIMM technology allowing you to use 1MB, 2MB, 4MB and 8MB modules.

**Zero Wait State** - The PC1208 never leaves the processor waiting around for data, meaning your Amiga 1200 will run at its maximum speed. Simply adding either a PC1204 or PC1208 to your Amiga 1200 will increase its processing speed by 219%.

**Real-Time Battery Backed Clock** - Allows files to be date-stamped with the correct time and date so that you know exactly when they were created.

**Ultra Fast FPU** - With the addition of a maths co-processor intensive maths operations will be accelerated by up to fifty times. The PC1208 is the only memory expansion which offers the capability to take either PGA or PLCC type FPU's.

**Easy To Fit** - Fitted in minutes without the need to remove the computer's case. Does not effect your warranty.

**PCMCIA Friendly** - Unlike other expansion boards the PC1208 does not conflict with your Amiga 1200's card slot, using the PCMCIA friendly jumper even an 8MB SIMM can be used.

**PC1208 Memory Expansion**

| | | | |
|---|---|---|---|
| PC1208 Bare | **£70.00** | **PC1208 FPU's add:** | |
| PC1208 1MB | **£115.00** | 20Mhz 68881 | **£35** |
| PC1208 2MB | **£170.00** | 33Mhz 68882 | **£80** |
| PC1208 4MB | **£270.00** | 40Mhz 68882 | **£114** |
| PC1208 8MB | **£465.00** | 50Mhz 68882 | **£154** |

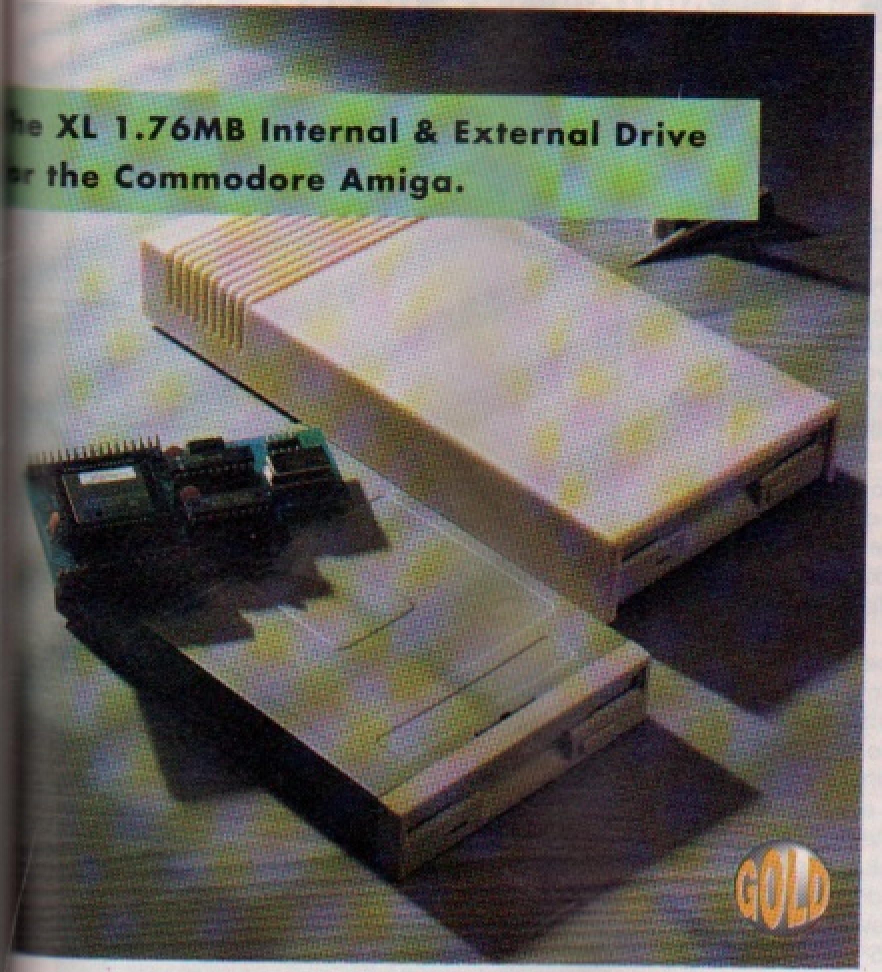
**PC1204 Memory Expansion**

| | |
|---|---|
| PC1204 4MB no FPU | **£185.95** |
| PC1204 20MHz 68881 | **£219.95** |
| PC1204 25MHz 68882 | **£279.95** |
| PC1204 33MHz 68882 | **£289.95** |
| PC1204 40MHz 68882 | **£299.95** |
| PC1204 50MHz 68882 | **£339.95** |

## The PC1204 & PC1208 Memory Expansion for the Commodore Amiga 1200.




## The XL 1.76MB Internal & External Drive for the Commodore Amiga.




Power Computing's XL 1.76MB Drive* for any Commodore Amiga is now available. The XL Drive includes these many features:

**Formats to 1.76MB** - Using high density disks you can fit a massive 1.76MB on each disk.

**Acts as a standard drive** - Insert an 880K Amiga disk and the drive behaves like any other Amiga drive.

**Fully compatible** - Will read and write disks written on an Amiga 4000 internal high density drive.

**Compatible with PC disks**** - Also read and write high density PC disks using a suitable device driver.

**Compact size** - No larger than a standard 880K floppy disk drive.

**High quality design** - Uses a high quality Sony high density mechanism.

**Easy to Fit** - The external XL Drive simply plugs into the floppy drive port at the rear of your Amiga. The internal XL Drive simply replaces or adds to your existing drive(s). These drives can be installed in minutes and no soldering is required.

**Software compatible** - The XL series is fully compatible with all existing hardware and software.

**External XL Drive £99.95**
**Internal XL Drive £89.95**
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*Requires Kickstart 2 or above. **Requires Workbench 2.1 or above.

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# Overdrive





**Until now A1200 owners have had to invalidate their warranties if they wanted to fit a hard drive themselves. Mat Broomfield looks at Software Demon's stunning new solution to this age old problem.**

Thanks to its built-in IDE interface, it's extremely easy to add a hard drive to the A1200. However, unless you pay an authorised dealer to fit the drive for you, you'll invalidate your warranty as soon as you open the case to put the drive inside. This could land you with a hefty repair bill if your Amiga subsequently develops any kind of fault. Also, internal IDE drives are not known for their speed and efficiency when compared to their SCSI counterparts.

However, thanks to Software Demon, all of these faults have been overcome in a single, brilliant stroke called the Overdrive.

The Overdrive is the world's first PCMCIA slot hard drive for the Amiga. Yes, you have read that right, the Overdrive plugs into the 'smart card' slot at the side of the computer. The drive is housed in a white plastic shell that is the same colour and shape as the A1200's casing and it's a gnat's whisker under a quarter of the width of the A1200 and exactly as deep. It has a single red power light on top and a small power socket at the back. The unit uses both a 5 and 12 volt supply. Although Software Demon do not recommend that you make a habit of it, the Overdrive can be plugged into the A1200 whilst it's actually switched on. I tried this many times, and although the A1200 did crash on one occasion, both computer and drive appeared none the worse for the experience.

## WHAT DO I GET?

When you buy the Overdrive it's supplied with two pieces of software: *AQ Tools* and *Civilisation AGA*. Before you can use the drive, it needs to be prepped (ie inserting the AQ disk and double clicking the icon). A second icon on the AQ disk will automatically copy all disks from the Workbench environment onto the drive for you. Once that's done, the drive is ready to use. In terms of speed, the Overdrive is capable of writing at an average speed of 1.214 megs per second, that's 300k faster than my beloved GVP A530 Turbo! This makes it the fastest IDE drive ever reviewed by CU AMIGA. In fact, it's faster than any SCSI drive ever reviewed by CU as well.

## HOW MUCH DOES IT COST?

If you already have an internal hard drive, you can still add an Overdrive externally; you'll just need to tell *AQ Tools* to configure the external drive differently. Because the drive plugs into the PCMCIA slot it can be disabled in two ways; the easiest is simply to unplug it, and as I've already mentioned, you can even do that whilst the computer is switched on.

The second alternative is to disable the drive using the boot-priority section of the Start-up Options screen. By default, the drive has a high-boot priority which places it above any internal drive that you may have installed, but needless to say, that too can be changed.

Although prices have not been absolutely fixed yet, Software Demon expect to offer a 170 meg drive for only £299, whilst 85 meg units will retail for about £250. They're able to offer such low prices because the unit uses the cheaper three and a half inch IDE drives, as opposed to the expensive 2.5" drives used internally.

With prices this low, it's actually feasible to buy both an external and internal drive together so that one is used as the back-up device for the other. An ultra portable pocket-sized 2.5" unit has been developed, but Software Demon are not sure if there's a sufficient call for such a unit, and therefore haven't come up with any release or pricing plans yet. Congratulations to Software Demon for what looks like being one of the most innovative hardware products for the A1200 to date. CU

**For more information about the Overdrive ring Software Demon on 0736 331 039. Full review next month.**



## PARALLEL HARD DRIVE

For those with a taste for something a bit different, Software Demon have an IDE hard drive that connects to the Amiga via the Parallel port.

For an IDE drive, the box is rather large; it's about an inch tall with a top surface about the size and shape of a sheet of A5 paper.

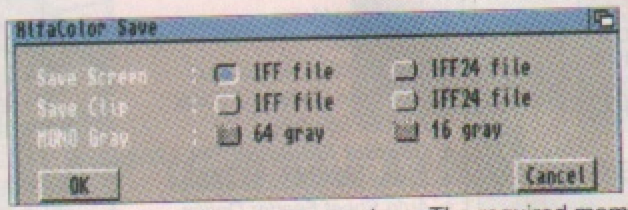
The reason that it's so big is that it houses a six-cell rechargeable battery pack. It was designed primarily for portable PCs, hence the battery pack, but works fine from the Amiga.

It plugs into the Parallel port, and uses the non-autobooting PAR: device, so you won't be able to use it to boot up your system. Even so, in conjunction with an existing hard drive, it could add some much-needed storage space. Transfer rates are likely to be about half that of most IDE drives. If you've got a printer, you'll still be able to use that with the aid of the through port.



**What do hand scanners and buses have in common? You don't see any for ages then three appear at once. Mat Broomfield gets the latest from Golden Image.**

The software lets you save images in the current screen format or as 24-bit IFFs. Alternately you can choose between 16 or 64 shade grey scale images if you're working with a mono scan. As soon as you save an image, it's erased from memory which is a bit silly..




# Alfa Data Hand Scanner

A couple of months ago we reviewed the Migraph Colorburst hand scanner and this month we take an offering with a very similar pedigree from Golden Image. However, just because the two scanners share the same background, doesn't necessarily mean that they share the same performance.

Both scanners, however, are in identical black casing. But this is not unusual as many companies use the same scanning 'engine'; it's what they do with it that really counts. So here's a quick run down on how they operate: generally, a scanner is attached to the computer via a large interface which plugs into the parallel (printer) port. The interface is about the size of an external disk drive and has a through port at the back so that you can plug your printer in without unplugging the scanner. You can switch between the two via a two-way switch on the front of the unit. There's even different coloured lights for the printer or scanner so you can tell which one is active in the dark!

## NICE DESIGN

As with all scanners, the Alfa Data unit needs extra power and rather than use an external power supply, the unit draws the necessary amount from the external drive port (or the through port of an external drive). This is great, because it means you don't have to mess about with power cables all over the place.

Unfortunately, if you already have a lot of peripherals connected to your computer there may not be enough power left over for the scanner. However, you can get around this by buying the optional external power supply which costs £39.95.

Once the scanner is plugged in, it's simply a matter of loading the software and you're ready to begin. The software can be installed on a hard drive by simply dragging a single icon to the required location on the drive. Alternatively, it can be loaded directly from the single floppy it's supplied on.

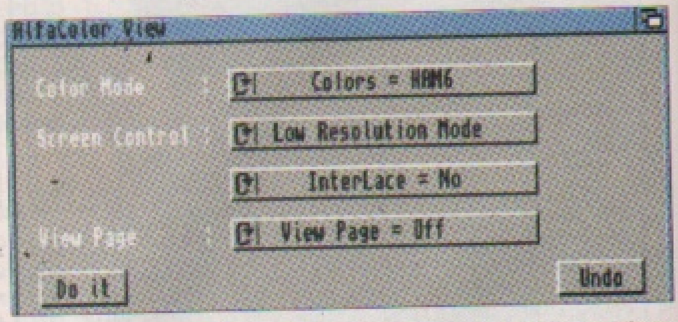
## BEFORE YOU BEGIN

When the software loads the main control screen appears. This screen displays all the options and set-up parameters. Your processor and FPU specs are shown as well as the currently-selected scan mode and dimensions. The required memory is also shown. Unless these defaults are suitable, you'll have to go into the set-up menu to change them.

You can specify the scan mode, resolution and scan size, the scan speed and whether or not turbo boards are fitted.

There are five scan modes ranging from SuperColor, to dithered and text mode. In SuperColor the scanner will capture a colour image with an 18-bit resolution.

Dither mode can also be used for colour work. It uses a smaller palette than supercolor mode, but uses ditherng (halftone) techniques to give the impression of lots of colours.The resolution section lets you choose one of the scanner's four predefined resolutions. These vary according to the scan mode being used. SuperColor scans use resolutions between 50 and 200 dots per inch increasing in 50 DPI increments, whereas the other modes




Scans are displayed in eight colours as you do them, and these are then converted into a display that uses the current screen preferences. If you want to see the whole of an image that's too big for the screen, the view requestor will scale it to fit although there will be some loss in quality.

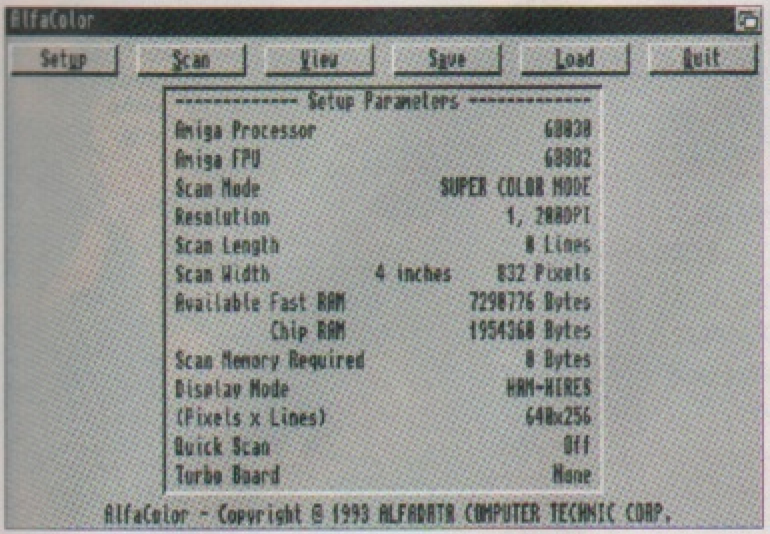
increase by 100 DPI ranging from 100 to 400 DPI.

The next two gadgets allow you to specify the dimensions of the scan. There's a cycle gadget that you can toggle between one, two, three or four inches wide and a slider for setting the length. The maximum length can be calculated according to the amount of free RAM, the width and the scan mode chosen.

For example, on a 2Mb A1200 with a width of two inches in SuperColor mode, I was able to specify a maximum length of 4.03 inches. When I switched to text mode that increased to 43.10 inches. Below the dimension gadgets there are a couple of radio buttons that can be used to specify the measuring system: imperial or metric. Strangely enough, if you set the maximum scan size according to this section, when you try and scan you immediately receive a 'not enough memory'



This image was scanned from the cover of a magazine and would be more than adequate for semi-pro DTP work or as a stand alone screen.The dither mode is ideal if you don't have much memory or an AGA machine. As this image demonstrates, the mode can bring out a high level of contrast and detail.




**The main screen is very pleasantly uncluttered, which means that the program is extremely easy to learn.**

warning. A bit of sloppy programming there!

In SuperColor, Color Grey and Mono Grey modes you can set an additional option called Quickscan which is intended for use whilst you're still experimenting with the settings. It simply lets you double the speed of your scan by halving the vertical resolution.

The software claims to support accelerators and has a special button that switches accelerator mode on and off. Unfortunately, when this is turned on, all scans appear in the wrong colours and are totally useless.

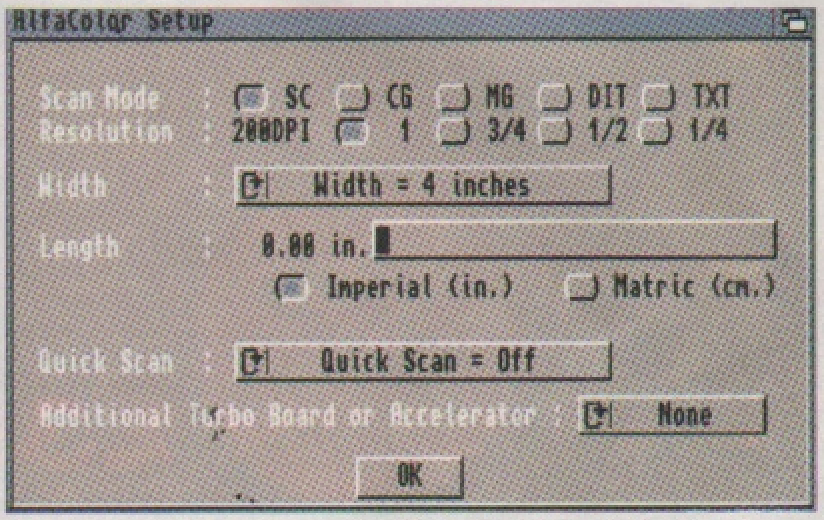
## SPEED KILLS

The software also claims to be three times faster than the previous version, but frankly this simply isn't true. I found the scanner to be more sensitive to speed than any other scanner I've ever used before. If you move it at much above a crippled snail's pace the finished scan will have great big chunks missing. This is more true in some modes than others, the colour ones in particular. In CG mode it was almost impossible to move the scanner slowly enough!

Once you've set your scanning preferences, it's time to do a scan. Click the scan button and a requestor will appear telling you to let the scanner warm up. A two-minute counter also appears. If this is the first scan of a work session you should let the heads warm up for a full two minutes, but subsequent scans will only need a few seconds of warm up time. The heads need this warm up time in order to reproduce consistent colour information.

When you think that the heads are warm enough, click 'start scan' and the scanner is ready for use. Press the scan button on top of the scanner, drag the unit slowly over the image to be scanned. As you do so, a beeping noise will emanate from the interface.

This beeping corresponds directly to the speed at which you move the scanner and is useful both for gauging your speed and ensuring that a scan is being taken correctly. When you take a scan, a roller on the bottom of the unit is used to let the scanner know that you're moving across the page. It's essential that this roller stays in contact with the paper at all times during a scan. If you're only scanning a flat piece of paper this won't present a problem, but if you're scanning from a less reliable surface (the curved page of a book for instance) then the scanning indicator is especially useful. As you record a scan, an eight-colour representation is built up on the screen to indicate how far you've got.




**This is where you'll choose from one of the five scanning modes. I found CG the best.**

When the scan has been been completed, the full image is built up and displayed. If the image is larger than the screen or you want to see it in a screen mode other than the current one, the View requestor lets you do so.

## 24-BIT SAVE

When you're happy with your results you can save the scan in either the current screen resolution or as a 24-bit IFF image. If the scan was in monochrome, you can opt to save it as a 16 or 64 shade file. Strangely enough, there's also the option to save a clip, yet there's no option within the software to define one in the first place.

I can't let the matter of file requestors go without mentioning an absolutely fatal bug that the program has – if you go deeper than three directory levels on a disk, it crashes every single time!

Also, it won't let you attempt to save the same screen twice. The second time it won't even let you near the file requestor; as soon as you select 'save' the program says, 'unmodified image data' and dumps you unceremoniously back where you came from. When I tried to alter the save format to clip, the program crashed.

This many fatal errors in the most important requestor of the program really is most unacceptable and definitely needs to be sorted out immediately.



I found that Supercolor mode worked best when the software resolution setting was lower than that on the scanner.

## CONCLUSION

The Alfa Data scanner works well and is easy to use. However, I feel that this is in spite of its software, not because of it.

The scanner seemed to work particularly well when scanning commercially-taken photographs which are all skillfully lit, but when it came to my own photographs it wasn't as easy to get decent results. Control over the contrast and saturation of the image would have helped the situation.

The option to produce 64 shade grey scale images is an added bonus and will prove invaluable to people who use their scanner in a semi-professional desk top publishing environment.

Despite that, this is still the cheapest and easiest way to digitise pictures and photographs. If you already own a decent video camera I suggest that you go for a digitiser such as Rombo's Vidi12, especially if the images to be digitised are quite large. If you don't own a video camera or the images are very small, the Alfa Data scanner is certainly the best colour hand scanner yet.

When you compare its price to the £600 plus level of flat bed scanners you start to appreciate its value all the more. CU

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|---|---|
| EASE OF USE | 95% |
| *Couldn't be easier* | |
| VALUE FOR MONEY | 85% |
| *Ideal entry level price* | |
| EFFECTIVENESS | 80% |
| *Does the job well, but the software has far too many bugs, some of which are fatal* | |
| FLEXIBILITY | 85% |
| *Scans in a variety of modes, but has no editing features once a scan is taken.* | |
| INNOVATION | 80% |
| *Not the first, but certainly the best. Great results, easy to use, fair price but more bugs than an ant farm!* | |

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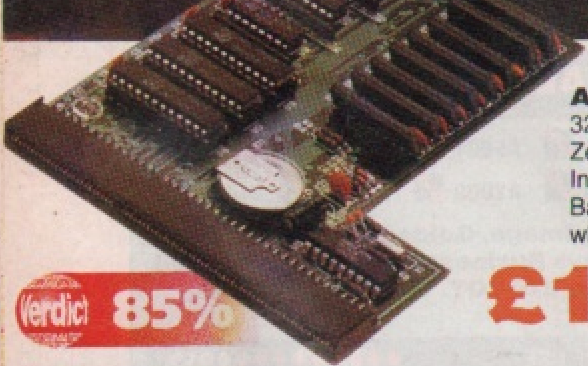
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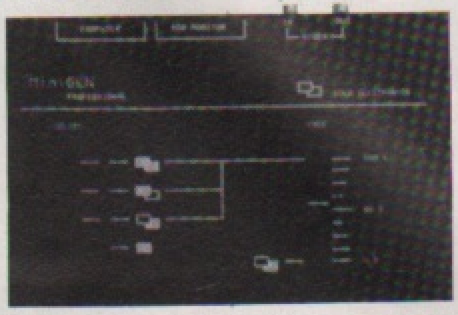
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# Wired world

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You might be sitting in your own room, but your Amiga could be talking with another computer on the other side of the planet. Arthur C. Clarke's famous prediction of a global village draws nearer every day. The wires which carry BT's telephone service into your house can also connect you to one of the world's most important commodities: information.

Once encoded into binary form, information can move at the speed of light around the globe and it only takes a small box the size of a paper-back to enable text, sound, even full-colour pictures to be sucked from the ether onto your Amiga screen.

Currently, only a small percentage of home computer users get on-line. The big users are the corporations and banks which need large amounts of data moved around immediately.

Already the telephone lines are not enough because they are designed for voice transmission and little more. Their capacity for carrying information is sorely limited. The next step is the laying of optical fibres which can carry many thousands of times more data. With this much capacity, a lot more than a single conversation can be transmitted. With large capacity ISDN channels cropping up more and more frequently, the problem isn't going to be how much data can be squeezed down a line, rather how much can you take in one go?

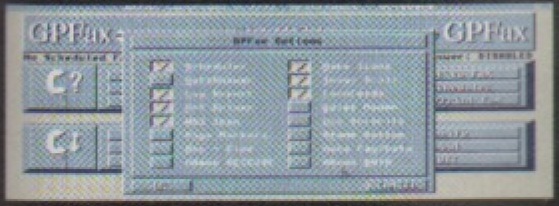
## WHERE YOU FIT IN

Before you can connect your Amiga to the outside world, you'll need to invest in some extra hardware and software. The software side is easy; most public domain libraries have large stocks of suitable terminal emulation software (NComm, Term) which are ready and waiting for you to use. Using a fax-compatible modem is a little trickier, as fax standards expect data to be sent in a very rigid line-by-line



method. GVP's *PhonePak* comes with software to send faxes, but the stand-alone program *GPFax* is probably the best for the job where ordinary modems are concerned. Faxes can be created from either Ascii files or ILBM graphics, and sent immediately or scheduled for later transmission. Cover sheets, company logos and personal signatures can be included automatically, and the user interface is a doddle to use.

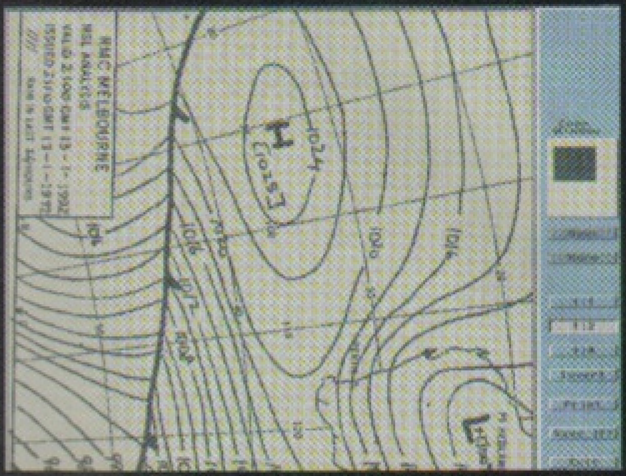
**GPFAX is a very flexible piece of software. It can wait on the Workbench for a scheduled transmission or an incoming fax. If the outgoing fax line is engaged, it will wait and try again later.**




*GPFax* also has a special printer driver, which means any program which normally outputs hard copy can be redirected. If you buy a fax-modem, remember to ask if it has *GPFax*.

Although computers can produce suitable serial data without a second thought, the voltage and current levels involved are entirely unsuitable for transmitting down a voice channel like the public telephone service. An intermediate interface is required which can take the binary data from the computer and convert it into audible tones. Such a piece of equipment is said to MODulate and DEModulate an audio carrier frequency, hence the term modem. Fax machines are nothing more than computers with modems attached and built-in mono-chrome image scanners and thermal printers.

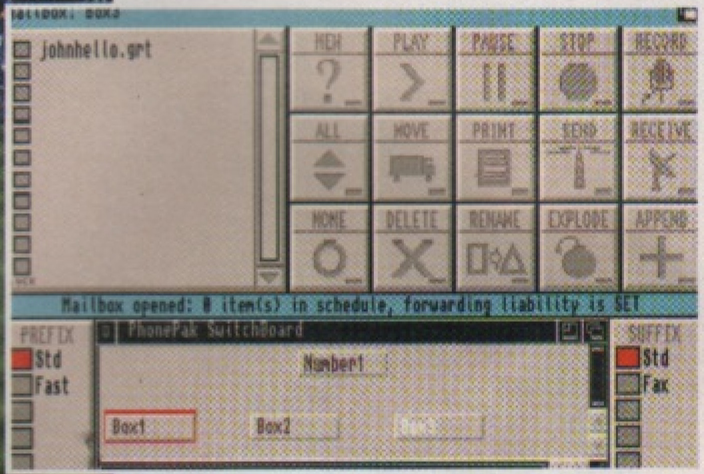
GVP's *PhonePak*. opens up new exciting areas as it can can deal with humans *and* computers.



**GPFAX allows received faxes to be previewed on the screen, before sending them to a printer if required. This option is also good for checking that your fax doesn't look like a pile of plop before you send it.**

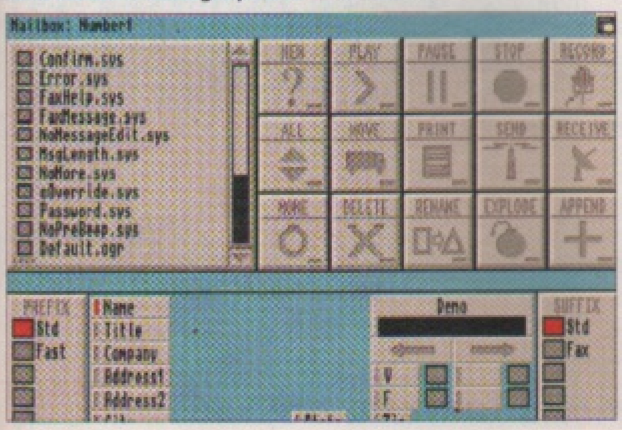



**When designing a new system, all the possible routes between mailboxes must be defined. For example, if the user enters a one on the 'phone handset, the system will jump to mailbox Box1.**




**When is your Amiga not your Amiga? When it's a telephone answering machine of course... or a fax machine... or an intelligent voice mail system. In other words, when it has a GVP *PhonePak* card installed.**

**With its array of huge icons, even visually impaired users like myself don't have problems selecting the right icons. On the left is the list of messages present in this mailbox.**




"I'm sorry, there is no-one here right now: please leave a message after the tone". A simple sentence which can still strike fear in the heart of most people, myself included. Suddenly, all confidence evaporates, the vocal chords constrict and next thing you know you've left a message along the lines of: "Erm, I hate these machines. It's me here, I wanted to see you about the erm. OK, I'll call you later. Oh it's John by the way. And it's Tuesday. Ok. Erm. Bye."

If it sounds familiar, then you are are cursed with answering-machine phobia: the stilted speech, the confused messages, the total embarrassment. With a little Amiga technology that can all be changed. The answering machine from hell can be transformed into an artificially-intelligent messaging service; all thanks to the latest product from GVP.

## WAY BACK

It all started – according to Christopher E. Darsch, head of the design team at Atlantis Design Group – as a desire to make answering machines more fun. They wanted a machine that could give fun messages, take answers and sample them onto a hard disk. With messages stored digitally, they could be replayed in any order, automatically date stamped and a whole lot more.

When they brought this idea to GVP, the perspective changed. The *PhonePak* became a lot more than an intelligent answering machine: it became a voice and fax mail system. You just won't believe all that this Amiga Zorro card is capable of. I know, I'm still thinking of new ways to use it – so lets start with something simple. How would you like a separate answer machine for everyone in your house, and yet still only use one line?

## INSTALLATION

*PhonePak* plugs into any Zorro slot on any suitable Amiga, namely an A1500, A2000, A3000 or A4000 (although due to a bug in the A3000's hardware you'll need some extra memory on another Zorro slot in order for the card to work properly). There are four connections at the back: one to the telephone wall socket, one to an actual telephone, one to the Amiga's left audio output and one to an external amplifier. Then it's a matter of installing the software – a process which takes seconds – and you can start to play.

*PhonePak* comes with two separate programs, the main *PhonePak* editor, and a small utility called *LineMan*. *LineMan* runs independently in a tiny window on your Workbench, listening for any incoming calls. When it receives one, it answers the phone and passes control to the main *PhonePak* system.

## IN THE SYSTEM

Think of the 'system' as a collection of rooms. When a caller enters each room they are given a spoken message on the telephone. This message could be something simple like, "I'm sorry, there is no-one here at the moment. Please leave a message after the tone". A room can also record a message, and store the resulting sound file as a stand-alone sample which can be replayed at any date. It all sounds very simple, but with BT's own answering machines starting at £30 these days, you would expect a little more. And there is more, »

# JARGON BUSTERS

## WHAT DOES IT ALL MEAN ?

At parties, there are always various people who distinguish themselves by their amazing ability to bore to tears anyone unfortunate to be trapped into talking to them. The DIY enthusiast with his ripping yarns of wallpaper alignment, and the performance car 'expert' amongst others are knuckle-whiteningly boring. Furthermore, many's the party-animal who has been reduced to a coma or suicide by the diode and chewing-gum crystal-set type anecdotes of the radio ham, but when the anorak wearers such as these come together to discuss such things, one group alone stands out as being supreme in the art of being boring gits, namely the 'Comms Expert'. Now, with CU AMIGA's essential guide to Comms jargon, you too can don that polyester anorak...

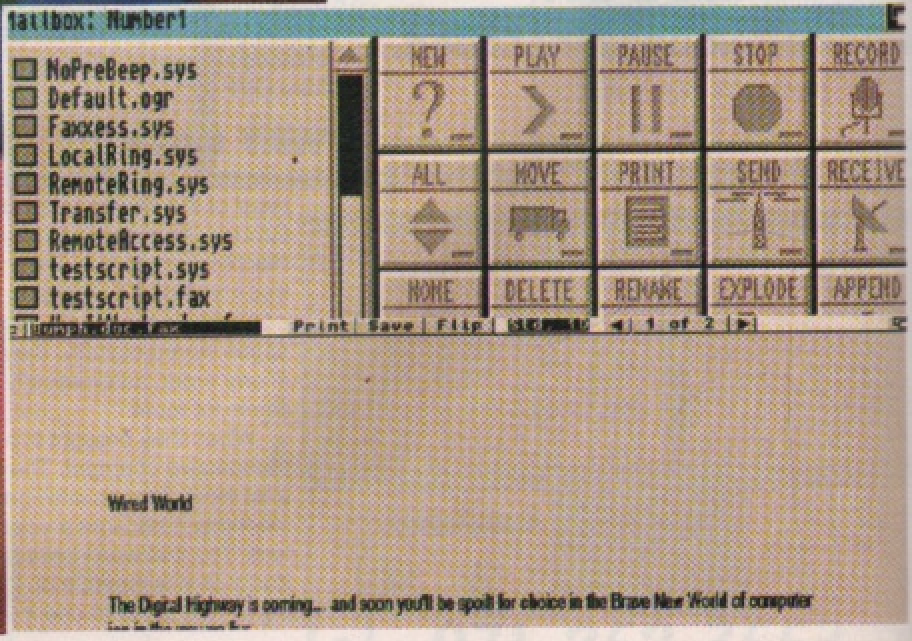
ARQ: Automatic repeat request. This is a function of the MNP error-correcting protocol.
AT COMMAND: This is the *de facto* standard for issuing commands to modems from your computer through an asynchronous serial port. It was started by Hayes and adopted by other modem manufactures, and is in fact very far from standard for any modems later than those limited by the V.22bis standard.
AUTOSYNC: This is the term given to the buffering which is necessary between the asynchronous serial port of your computer and a synchronous modem protocol such as HDLC or SDLC.
ADPCM: Adaptive Pulse Code Modulation. This is the name given to the method of dynamically reducing the bandwidth on telecomms channels in response to the reduced bandwidth demands by the signal.
BAUD: This is the rate at which data symbols are transmitted by the modem. Since a data symbol may consist of more than one bit depending on the modulation method used, this is not exactly the same as bps.
BPS: Bits Per Second. This is the absolute rate of data transmission.
CCITT: Consultative Comittee on International Telegraph and Telephone. This lot set international standards for telecommunications which are advisory rather than mandatory and, amazingly, people adhere to them !
CLASS 1 FAX: A standard for fax software compatibility with fax modems. It requires the host computer to do most of the image preparation and interpretation, as well as the negotiation with the remote fax machine.
CLASS 2 FAX: You've guessed it! Yes, this is another standard for fax software, EIA approved in 1992, this time delegating more of the negotiation to the remote fax machine than class 1. Image preparation and interpretation is still carried out by the host computer.
CPS: Characters per second.
CRC: Cyclic redundancy checking is the method used by MNP error correction to ensure data integrity.



» so much more. Nearly all 'phones now use tone dialling. As you dial a number, the 'phone sends out a bleep to the local exchange where the tone is converted back into a number. It's a very fast system, but it has a few other benefits as well. The tones can be sent whilst in the middle of a conversation, and *PhonePak* uses this idea to offer callers a form of interaction. The simple answering machine can now be expanded to offer editing facilities. After you leave a message, a smooth American voice (or yours if you want) will ask you if you want to re-record your message, or add something more. To select your option from this 'voice menu', all you have to do is press a few buttons on your handset.

Although this is quite an advanced system compared to standard answering machines, it only takes about five minutes to get it up and running. The *PhonePak* editor makes designing these 'mailboxes' remarkably easy, and the large icon-based screen is powerful simplicity in action. The LineMan program makes testing the system extra-easy. All you need do is pick your own phone and press a key, and *PhonePak* directly connects your handset and treats you as an external caller. You aren't connected to the external line, so you can test your system over and over without collecting a bill for the privilege. It only takes a few attempts playing with the system before your appetite is well and truly whetted. Now for something a little more advanced, how about that answering machine for everyone in the house?

**PhonePak will display faxes on-screen, so you needn't get involved with rolled up sheets of thermal paper unless you really feel you have to.**



DB: Decibel - the unit used to measure the ratio between two signals on a logarithmic scale.
EIA: The Electronic Industries Association of America. This body sets US national standards which are frequently adopted by other countries. Examples of this include the Class 1 & 2 fax standards and our old favourite the RS232 serial port standard.
ETSI: European Telecommunications Standards Institute. Uncharacteristically, for such groups this bunch set out mandatory standards for the European telecommunications industry.
FALL-BACK: No, it's not what CU technical writers tend to do after 15 techila slammers, but instead this is the ability of a modem to select a slower transmission speed if the quality of the telephone link is poor.
FALL-FORWARD: Amazingly enough this refers to the ability of a modem to up its tranmission speed to take advantage of an increase in quality of the phone line.
FRAME: A block of data plus its relevant header and trailer information.
FULL DUPLEX: Simultaneous data transmission in both directions along the telephone line.
HALF DUPLEX: Non simultaneous data transmission in both directions along the telephone line.
HDLC: High-level Data Link Control is an error-correcting synchronous communications protocol.
HST: High Speed Transfer is an extra fast transmission standard.
ISDN: Integrated Services Digital Network. This is a new type of dial-up telephone network which supports the transmission of digital data directly, rather than needing modems to decode digital signals onto an analogue network.
KBPS: Thousands of bits per second.
LAP-M: An error correcting protocol used in the V.42 standard.
MNP: Microcom Network Protocol has become a de facto standard in error correction and data compression. MNP5 has become the standard in error correction.
PTT: Postal, Telephone and Telegraphy administration. This organisation provides telecommunications services on a national basis.
QAM: Quadrature Amplitude Modulation is one of the most impressive sounding terms in the comms-bores lexical arsenal, and refers to the method of modulating the phase and amplitude of the carrier signal used for V.32 and above.
SDLC: Synchronous Data Link Control is an error-correcting synchronous communications protocol.
UART: Universal Asynchronous Receiver Transmitter is an integrated circuit used to interface your computer to an asyncronous serial port.
V.17: A CCITT standard for communication at 14,400bps. This rate is primarily used for fax transmission.
V.21: A CCITT standard for 300bps, now well past it.
V.22: A CCITT standard for communication at 1,200bps with a fall-back speed of 600bps.
V.22bis: A CCITT standard for communication at 2,400bps »

## HAPPY FAMILIES

If your household is anything like mine, you have several people all wanting to use the same 'phone. Messages for other members of the family get forgotten or confused and everyone needs their own line and machine.

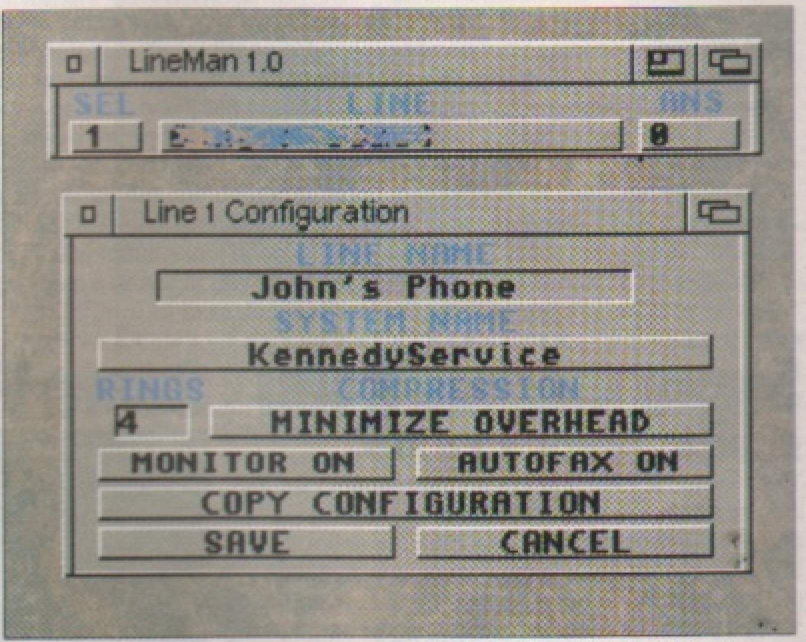
With three young males in my house, a single telephone can cause friction. *PhonePak* can help. On the editor screen, create a new mailbox for each member of the family. In each, leave a greeting ("I'm Sorry, John can't come to the 'phone right now. Please leave a message after the tone.") for when you aren't at home.

Next create a main mailbox, which gives messages along the lines of "Hello, welcome to the Kennedy household. If you want to speak to John, please press 1. To speak to Andrew, please press 2." and so on.

Now every member of the household has their own answering machine in the form of a mailbox which can be filled with messages. But what happens if only one person is out of the house? Can the system be expanded to cope with this situation? No problem; *PhonePak* incorporates its own scripting language which is specifically designed for more complicated systems.

Imagine if the system enquired from the caller who they wished to speak to, then tried to page this person and only when this failed did the answering machine switch on. All that's needed is a script such as that shown below, executed when the caller is routed from one mail-box to another. This sample script is what occurs when a caller tries to talk to me.

<play PleaseWait.msg> ;Tell the caller "Please wait while I page John..."
<announce ItsForJohn.msg>;
Broadcast "It's for John" over the computer's monitor speaker
<play RemoteRing.sys> ;
Play a ringing sound to the caller
<announce LocalRing.sys> ;
Broadcast a ringing sound over the Amiga
<play RemoteRing.sys>
<announce LocalRing.sys> ;
Repeat to give John time to answer
<quit> ;
John didn't pick up, go to system;
and ask caller to leave a message.




Lineman exists almost invisibly on the Workbench, waiting to answer calls. Here I have expanded the view in order to change some options. For example, Autofax On will check that the caller isn't in fact a fax machine, which can cause a few seconds of delay.

## IT'S A SECRET

When you send numbers down the line, you can also send passwords. Any mailbox can be set up to secretly accept a combination of button presses and act on them. For example, if my extra pretty but quickly-bored girlfriend calls me, she knows that by pressing '9999' at any time during the 'I'm sorry there is no-one here' speech the computer will immediately page me with a message expressing the sentiment that I'd better pick up the 'phone in a hurry if I know what's good for me. If you happen to run a club, your members can dial your number up and enter a special code to immediately get information without bothering with your private answering service.

By the way, recording your own message is only a matter of pressing a button and speaking into the 'phone: your voice is digitised and stored on disk with remarkable clarity via the on-board sampling hardware. The more adventurous can use any IFF standard sound samples for more, ahem, interesting results.

## BUSINESS USE

When you've played with *PhonePak* at home for long enough and created enough messages to put off all your friends from ever calling you again, it's time to put your Amiga to work. In a business of any size, a *PhonePak* can offer some amazing services. To give that one-man company the image of an international business, why not create several 'virtual telephonists' who route incoming calls through several 'virtual switch boards' before eventually passing the calls through.

Any business needs access to a fax machine, and surprise, surprise, *PhonePak* comes with one built in. Any standard Ascii text or two-colour IFF bitmap can be converted to a fax document, and sent to any fax machine on the planet. As the images are created without scanning, the quality is superb – easily surpassing any traditional fax machine. *PhonePak* can also receive faxes. LineMan will do so automatically if you ask it and once stored on disk as IFFs they can be sent to your own printer.

No more mucking around with rolls of thermal paper. *PhonePak* is one of the easiest-to-use plain paper fax machines around. Even better, the fax facilities are all integrated under software control. A caller can leave a spoken message and a fax with one call. *PhonePak* will link them, so you know you sent them; an excellent concept. Sending faxes can be automated too. Your answering system could offer to send prospective clients copies of promotional material by fax, all they have to do is key number '66' or whatever you want. I'm currently trying to convince Dan to install a *PhonePak* at the CU office to provide voice and fax mail facilities, and if he caves in you could soon be downloading back issues by 'phone!

## EASE OF USE

*PhonePak*'s software and documentation are excellent, with tutorials to guide you through all the features. The version two software we received includes better support for remote access. So, for example, when you dial home »

### TECH SPEC

The *PhonePak* works in any Zorro slot, and in fact up to five can be fitted to an Amiga A2000 which will operate without needing any form of accelerator, thanks to GVP's custom DMA handling hardware.

Sounds are replayed using on-board chips which produce output as good as any you will hear down a 'phone line, certainly clearer than the tiny little cassette tapes you get in normal answering machines. Even better, because the messages are stored on hard disk, you can listen to them in any order you like.

Connecting the *PhonePak* to the real world presents some minor problems. First, as an American product the connectors look nothing like our trusty BT 'phone jacks. Silica provide adaptors. Secondly is the fact that BT are dead against just anyone using their telephone lines. All equipment needs to be tested and passed with a green triangle before it can be used. At present, *PhonePak* does not have a green sticker.

» V.22bis: A CCITT standard for communication at 2,400bps with fall-back speeds of 1,200bps and 600bps.
V.23: A CCITT standard for split rate communication at 1,200/75bps. This was developed for applications such as Prestel, which needed to present the user with information at 1,200bps but only required input from the user's keyboard at 75bps.
V.24: This is a CCITT standard for serial port hardware. It is electrically equivalent to RS232D and defines which pins of the standard 25-pin D-connector are used for what.
V.25/V.25b is: A CCITT standard for issuing modem commands for autodialling. It is much more limited than the similar Hayes AT command set, but has the advantage of being able to work with synchronous protocols.
V.27TER: A CCITT standard for communication at 4,800bps with a fall-back speed of 2,400bps. This is another speed standard primarily used for fax transmission.
V.29: This is the CCITT standard for commication at 9,600bps. This is another one mostly for faxers. »

from work you can be told exactly when a certain message was received. Using *ARexx* also allows some pretty amazing features; if you are going out for the evening to a friend's house, *PhonePak* can call you up, and replay any incoming messages.

If I had any criticisms at all, it would be that some features are hard to find in the supplied instruction book; it took me a day to discover that pressing ALT and clicking marked a mailbox on and off. However, it took me so long because I forgot to press the Help key.

## CONCLUSION

*PhonePak* is an amazing piece of kit. It provides a seamless interface between the Amiga and real world on the end of a telephone line, and once that has been achieved the possibilities are endless. The supplied software, complete with scripting language and *ARexx* support, means that systems of incredible sophistication can be created. You can even run multiple *PhonePaks* in a single Amiga to handle multiple 'phone lines. Serious use requires an Amiga be dedicated to the task, but even this means complicated systems can be created for really low initial outlays. Without a doubt, *PhonePak* is a ground-breaking product.

### PHONEPAK £350-400

| | | | |
|---|---|---|---|
| A500 ✗ | A500+ ✗ | A600 ✗ | A1200 ✗ |
| A1500 ✓ | A2000 ✓ | A3000 ✓ | A4000 ✓ |

**SILICA SYSTEMS, 1-4 THE MEWS, HATHERLY ROAD, SIDCUP, KENT, DA14 4DX. TEL: 081 309 1111.**

**EASE OF USE** 88%
*Some features buried or missing from the otherwise excellent manual. Creating complete systems is a doddle.*

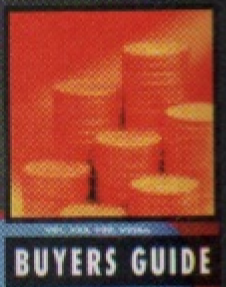
**EFFECTIVENESS** 96%
*It works almost flawlessly. Due to the technological nightmare that is the Telephone network, some handsets have problems creating suitable tones. All the ones I tested worked fine.*

**FLEXIBILITY** 97%
*So much is possible, you can think of six new applications every day.*

**INNOVATION** 99%
*At last something new and exciting that isn't about 24bit graphics.*

**OVERALL 96%**

# WHICH MODEM ?




**As the Amiga uses the industry standard RS232 serial interface, most modems available for PC compatibles are suitable. This has the benefit of keeping prices down and standards up. Here is a list of Amiga-test modems, as supplied by the First Computer Centre, Leeds (0532 319444).**

## Pace Microlin FX




### PACE PRICE £205.63

This tiny wonder is easily the cutest gadget I've seen in a long time. Billed as a 'pocket modem', the Pace is, for once, actually small enough to fit in a pocket. It's certainly smaller than a GameBoy. Smoothly black and decidedly Star Trek TNG looking, the effect is only spoilt when various flaps open to display standard 25way serial port connections and Yank telephone line-in-and-through sockets. Three LEDs on the top keep you informed as to current status. Power on and off is automatic. It actually turns on only when the Comms software is running.

Other nice touches include the dinky little carrying pouch and the ability to store 20 telephone numbers internally. Keeping your numbers secret is possible with integral password protection. Speedwise, the Pace is far from blistering. The data rate of 2400 bps will keep you waiting for all but the shortest downloads, although the fax speed is the standard 9600 and MNP to level 5 and v42bis modes are supported. It will Excel at quick Email jaunts, but for serious software downloads something with a great deal more is required.

Primarily designed to complement portable computers, the Pace comes with both a PSU (Power Supply Unit) and a standard 9volt battery for 'on-the-road' use. This portability is something you do pay extra for. Unless you really need it, don't let its good looks tempt you. If you do happen to have a portable, such as a trusty Z88, the Pace will allow you to sneak a quick on-line session when you visit your friend's house and as such it's in a class of its own.

**75%**

## Supra modem 2400

### SUPRA PRICE £74.99

This modem is clearly designed for the beginner, as it costs little more than a second floppy disk drive and is virtually foolproof to use. Like the entire Supra range, it's encased in a thick aluminum box capable of being trodden on, and measures about 12 by 16 cms. Connection to the Amiga's serial port is via a supplied cable and another lead and adapter takes the modem to the nearest telephone wall socket.

The First Computer Centre make it their business to supply you with all you need to get on-line, and this includes bundling some Comms software and a selection of Bulletin Boards for you to try. It will certainly take less than thirty minutes before even a complete novice has logged onto a board. For the price you pay, the specifications are acceptable if disappointing.

The data rate of 2400bps is quite slow, and if you intend to download a lot of programs from BBS systems you are strongly advised to wait until cheap rate.

However, as a first step to getting on-line, this modem is faultless. It's almost impossible to have problems working at 2400 bps, and the speed is ideal for leaving and collection small amounts of Email. The inclusion of software and all cables by First will ensure your first Comms experience is a happy one.

**70%**




## Supra FAX modem plus




### SUPRA PRICE £119.99

At first glance, this modem is identical in both specifications and appearance to the *Supra 2400*, but looks can be deceptive. The main difference is an inclusion of an extra LED on the front panel.

The *Supra FAX* modem must be the cheapest fax machine in the world. For not much more than £100, you get a fully compatible fax machine which can print on plain paper (assuming you have a printer that is). Most fax machines operate at 9600bps, which means it only takes a minute or so to send several pages.

You will need special software, but the facility makes this modem an attractive proposition for the home telecommuter. The 'plus' in the title presumably is a reference to the inclusion of MNP level and v32bis data compression, which theoretically push the data rate up to 9600bps. You should realise that this speed is only for uncompressed Ascii text. If the data is already compressed, as most programs on a BBS are, the rate will be a great deal slower.

As a first modem, this model can actually make more sense than the *Supra 2400*. For a little more cash, the extra features and speed are certainly worthwhile, remember that 9600 is effectively the fastest speed possible for faxes, so you could spend more on a faster modem without any noticeable benefits.

**85%**

# CUT, TICK & POST...CUT, TICK & POST...CUT, TICK & POST

TEEPHONE 0702 466933 FAX 0702 617123

PD SOFT (CU53) 1 BRYANT AVE, SOUTHEND-ON-SEA, ESSEX, SS1 2YD

### EDUCATIONAL DISKS

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❑ ^+ V546 KIDS PAINT A painting program designed for children.
❑ ^+ V584 FASTFACTS Everything you ever need to know about the solar system WORLDMAP Produce Maps. PLANETS
❑ ^+ V792 KIDS GAMES Geography Math, Sicence and Word Games.
❑ ^+ V793 AMIGA BEGINNER You ask-ed for it! Tutorial for the beginner on using your Amiga! Covers CLI & Workbench.
❑ ^+ V824 ELEMENT v3.0 Nice interactive display of the Periodic Table
❑ ^+ V825 WORLD DATA BANK v2.2 Using a database of coordinates of the CIA's, it plot's world map's in cylindrical or spherical projects in degrees of magnification.
❑ ^+ V843 DESERT STORM Select Maps & info surrounding the Attack
❑ ^+ V849 LANGUAGE TUTOR v1.0 Spanish, French, German & Italian.
❑ ^+ V908 DPAINT TUTOR Do you have DPaint, learn how to use it.
❑ ^+ V927 CLI TUTOR Helpfull program to understand how to use CLI & Shell.
❑ ^+ V933 GCSE MATHS Program to help with the GESE maths course
❑ ^+ V940 MATHSADV Simple math problems to solve. REFLEXTEST Tests
❑ ^+ V944 AMIGAWORLD Contains information about every country
❑ ^+ V1015 JAPANESE Help teach Japanese. Word-a-day & Vocabulary.
❑ ^+ V1111 CHILD QUIZ Simple Quiz game with colourful graphical pictures from ages 5 upwards Excellent little game

### FULL REGISTERED VERSIONS

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❑ ^+ CROSS SITICH Prints out a picture in a pattern for embroidering £16.99
❑ ^+ G51 FORMULA ONE Is a managment game on the Amiga. £4.99
❑ ^+ G52 POWERBASE Is a database that should cater for evertones needs. Stores upto 10,000 records. £4.99
❑ ^+> G53 EARLY LEARNING MATHS Teach young chirldren ages 5-9 £4.99
❑ ^+> G54 SPELLIE COPTER One of the best educational games. £4.99
❑ ^+ G56 SUPER SOUND v4.22 A completly New version with loads of extra features £4.99 or £12.99 with a full Printed Manual and software.

### VARIOUS UTILITIES

❑ ^+ V16 AQUARIUM Turns your screen into an eyecatching Fish tank.
❑ ^+ V109 PRINT STUDIO Excellent for printing graphic pictures or text.
❑ ! - V215 DISKMASTER v3.2 Copies files from one disk to another.
❑ ^+ V262 DUPLICATION & BACK-UP Superduper, Turbo copy, Sanity copy
❑ ^+ V277 FORTRAN-77 v1.3c Compiler, linker & run time support libs.
❑ ^+ V298 NORTHC v1.3 Complete C language with all files needed (2)
❑ ^+ V301 EYE OF THE BEHOLDER Disk Book with Maps, Strategy & Solution.
❑ ^+ V323 ANALTICALC SPREAD SHEET The best spread sheet. (2)
❑ ^+ V332 AMIGA PUNT PROGRAM Predict which horse will win the race
❑ ^+ V350 BUSINESS CARD MAKER Design your own Business cards.
❑ ^+ V366 600 BUSINESS LETTERS Over 600 Standard Business letters
❑ ^+ V390 DESK TOP PUBLISHING Extra features, Text & Graphics Editors.
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❑ ^+ V394 CHEMESTETICS v2.14 Draws molecules using the calotte model.
❑ ^+ V401 WINDOWBENCH (2) Give your Workbench v1.3 a stunning new look and update your aging software.
❑ ^+ V424 ANTI-FLICKER Said to stop the flicker in High Res mode
❑ ^+ V444 PRINTER DRIVER DISK III Now contains instructions on how to install them. Theres about 90 drivers
❑ ^+ V479 CHESS & UTILITIES A collection of chess related Puzzles.
❑ ^+ V489 AMIBASE PRO v2.0 This is most popular PD Database program.
❑ ^+ V490 MESSY SID v2.0 Reads MS-Dos disks, Transfer any text files to & from an IBM PC, ie PC to Amiga
❑ ^+ V523 DICE C COMPILER (2) Matthew Dillons full featured powerful C compiler & environment system.
❑ ^+ V536 CATALOGUE UTILITIES A collection of utilities used to Catalog disks/ Video & Tape collections (2)
❑ ! - V567 GENERATORS Selection of utls & Printer Driver Generators.
❑ ^+ V569 DUNGEON MAPPER v1.1 Can design maps for dungeons & Towns.
❑ ^+ V573 FILE & HD HDClick v2.0, File Minder, DosControl, & tools. (2)
❑ ^+ V575 HOME BUSINESS Based on word processing, Data Management, Spreadsheets, Accounts & Printing. (6)
❑ ^+ V583 ICON EDITOR III v2.0 Create Icons upto 640x200. Edit or Create
❑ ^+ V587 GELIGNITE FONTS (2) If you want some coloured DPaint fonts.
❑ ^+ V610 GOLF SCORES v1.84 It will record each round you play, Store it, make up an eclectic score NEW!
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❑ !- V624 NIB COPIER v2.0 Will copy in AmigaDos + special parameter copy.
❑ ^+ V627 DPAINT FONTS No's 1-3 (3) The latest selection. Fonts for use with any IFF Painting / DTP Program.
❑ !- V635 IBeM EMULATOR v1.5 Is a CGA Colour IBM-PC Emulator written to run on any Amiga. Shareware version
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❑ ^+ V678 DRAW MAP v4.1 You can generate world maps in detail views. 3d or 2d ❑ 2Mb (2) or ❑ 1Mb V263
❑ ^+ V681 GAME TAMER v4.01 Get a hold of that extra hard game & Cheat.
❑ ^+ V684 FONT EDITOR v1.0, Also contains other utilities. IFF Fonts
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❑ ^+ V686 MULTIDOS v1.12 After this program has been installed your Amiga drives can then read 720k IBM Disks.
❑ ^+ V688 MAGNETIC PAGES v1.30 Creates disk based mags with graphics
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❑ ^+ V710 AREXX TUTORIAL includes several sample Arexx scripts & sample progs. ARexx comes free on all WB v2.04+ disks
❑ ^+ V711 UNIX Contains a working demo of Minix (Unix) System call compatible
❑ ^+ V715 BIBLE The entire text of the new Testament & Torah Old Testament (3)
❑ ^+ V719 FREECOPY v1.8 (Removes protected games copy protection so that the user can install them on HD.
❑ ^+ V727 ART OF MED 2 Another excellent select of Med tunes.
❑ ^+ V731 AMOSBROT v1.1a Logistic Equation, Coast lines & trees Fractals
❑ ^+ V733 SOFTWARE LISTER v1.6 This program is designed to keep a track of your Software collection.
❑ ^+ V742 ONLINE v1.4 Program will allow you to find cheats within games.
❑ ^+ F691 PROFESSIONAL C MANUAL v3.0 Is the largest collection of utilities, documents & examples for C. It consists of six manuals, with over 40 chapters (5)
❑ ^+ V757 AMIGADEX v1.61 Creates a card index database system.
❑ ^+ V758 TEXTPLUS v4.0e Another update of this excellent Word processor program. Requires Hard drive
❑ ^+ V759 TEXT ENGINE v4.0 Updated version of the Word processor with AZSPELL. Excellent spell checker
❑ ^+ V761 A-GENE v4.18 The most popular genealogy database program.
❑ ^+ V770 ACCOUNT MASTER v2.12 Excellent Amos written program
❑ ^* V773 WB v2.04 WINDOWBENCH v2.0 Excellent Workbench replacement for all WB v2.04+ Users (2)
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❑ !- V817 A500 PLUS EMULATOR As it sounds will let v1.3 / v1.2 owners run WB v2.04+ software with out any need to purchase to WB v2.0+ chips.
❑ ^+ V818 INSCRIPT v1.1 Produce video titles. IFF Pictures as back grounds
❑ ^+ V820 BBBBS v5.7 Baud Bandit bulletin Board System Fixures include up to 99 file libraries, interface to extra devices

❑ ^+ V821 SNOOPDOS v1.5 Monitors Dos calls to see what library, devices, fonts are required if a program will not load
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❑ ^+ V823 POWERPLAYER v3.4 Very powerful, user friendly module player.
❑ ^+ V826 AHDM v3.4 Hard Drive Menu. When placed in your startup-sequence, offers a 16 page menu
❑ ^+ V827 REPAIR-IT 2: NewZap v3.3, Sector file editing system. FIXDISK v1.2, Recover as much as possible from a dele-dive disk
❑ ^+ V841 MODULA-2 Contains modula-2 language on the Amiga.
❑ ^+ V842 SID v2.01 Sid can be used for various operations, The best is the file copier on the Amiga
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❑ ^+ V846 SCOPIOUS MAPPER An excellent Dungeon mapping program
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❑ ^+ V856 PICTURE TOOLS Converts Pictures to other formats and styles.
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❑ ^+ V859 AUDIO TOOLS (2) Sound and Audio production utilities.
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❑ ^+ V865 IMAGE PROCESSORS Contains Tools to perform a wide variety of Image Techniques (IFF)
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❑ ^+ V872 ICON TOOL KIT Just about every tool you could imagine
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❑ ^+ V875 SPACE Help you study, identify the Stars & celestial objects.
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❑ ^+ V921 COMPUGRAPHIC FONTS Will work with DPaint v4.1, ProPage3, Pagestream, Page setter & Work bench v2.04+. About 30 Fonts (3)
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❑ ^+ V928 THE LITTLE OFFICE One of the best disks at the present time. Has a Word Processor and others
❑ ^+ V936 LETTERS & BOILERPLATE Letters for you to use as your own or cut & pause into a Word Processor
❑ ^+ V942 SCREEN BLANKERS A disk packed with screen blankers. Includes the Twilight Zone blanker along with 10 others
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❑ ^+ V952 x-BENCH v1.0 (2) Complete solution to the replacement Workbench. Contains LastHope, View, Virus Checker, Power packer & DCopy2
❑ ^+ V957 TACKS v1.2 Help you create self-booting animation disks.
❑ ^+ V958 CLUB LEAGUE Is a utility that will allows you to edit and keep track of your divisons/leaggue stats.

❑ ^+ V959 AMIGA_E v2.1b Specific compiler. E is a powerful and flexible procedural programming language
❑ ^* V962 SUPER KILLERS v3.0 (2) The latest Virus Killers like BootX v5.23a, which can save any bootblock and install it on another disk as well as check for viruses. VC v6.28 and VirusZ v3.06
❑ ^* V976 WB v2.04 UTILITIES 6 Next collection of WB v2.04+ utilities.
❑ ^+ V977 FILE & HD No 5-6 Next Excellent collect of HD utilities. (2)
❑ ^+ V979 NCOMM v3.0 Is a communications program based on Comm v1.34 with lots of very nice enhancements
❑ ^* V980 KICK v1.3 Will down grade A500+, A600, A1200 users machines to run software that would NOT normaly work. Turns them into a Workbench 1.3
❑ ^+ V983 MEGA CHEATS v3.0c Now contains over 500 cheats.
❑ ^+ V984 PROTRACKER v3.0a The latest updated version from Norway, Various bugs fixed and 70 new features
❑ ^+ V988 ZIPBENCH v4.0 Another Workbench replacement but contains excellent utilities like, powerpacker v2.2a, powerplayer, SysInfo, VirusX, Archiver, b-Bose, BootIntro, Degrader, Fist Aid Box (2)
❑ ^+ V994 THE MONEY PROGRAM v1.5 Features include upto a maxium of 60 accounts, upto 50 direct paymenys,
❑ ^+ V1000 GRAPHPRO v1.0 Written with Amos pro by David Jordan. Bascially takes a set of data, plots them on a graph.
❑ ^+ V1001 VMORPH v2.21 Will allow you to create smooth morphs/warps between two different images over a period of frames to create an animation.
❑ ^+ V1002 RAMOS PRO If you have Amos Pro then this disk will make your programs Boot without the program disk
❑ ^* V1003 NICKPREFS Is an enhancement to WB 2/3 which adds 3 new preferences WBPicture, BuzyPionter & Floppy.
❑ ^^ V1005 WORKBENCH 3.0 UTLS Contains the fist batch of A1200 and A4000/030/040 Utility programs
❑ ^+ V1009 TURBO TEXT v1.1 Excellent Word Processor. Very impressiveversion
❑ ^+ V1013 POOLS PREDICTION A helping hand with the Pools.
❑ ^+ V1016 OCTAMED v2.0 Music editor which was designed for making music for programs. (FULL & NEW VERSION)
❑ ^+ V1017 POST v1.86 An excellent Postscript interpreter for the Amiga which implements the full Adobe language (3)
❑ ^^ V1021 WB 3 SCREENS Enhance your Workbench disks backgrounds with theses nice full coloured pictures
❑ ^+ V1022 LITTLE TRAVELLER v1.1 Shows a world map & you can select any country for travel information, Zooms up another close up map with more detail.
❑ ^+ V1023 QUIZ Contains Questions & Answers with the option to add
❑ ^^ V1024 MANDELSQUARE v1.6 Generate enhanced AGA Mandelbrot set images, requires numerical coprocessor. You can create 256 colour coloured pics
❑ ^* V1025 TERM v3.1 Comm prgroam, Xpr transfer, filetype ident after download, cut & paste, point-and-click, auto upload/ download, VT102/VT220, Ansi emulation, powerfull phone book & AGA support (3)
❑ ^* V1034 ADM v1.01 Flexible address database with loads of great features.
❑ ^+ V1035 FES BASIC Just in time for all the new machines which do not have Basic with their machines any more.
❑ ^^ V1037 (AGA) A1200 WB HACKS An excellent collection of Utilities & Hacks
❑ ^+ V1038 AMOS PRO UPDATER v1.11 1st Update to the Amos Professional
❑ ^^ V1039 (AGA) WB3.0 INSTALL If you need to install your A1200 HD then you need this. Also see V1075
❑ ^+ V1040 bBASEIII v1.3 An easy to use, versatile, yet full featured database. Greatly enhanced successor to bBASE II.
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❑ ^+ V1051 EASY CALC v1.0 A spread sheet designed to be both easy to use and fast. Built in excellent help system.
❑ ^+ V1054 ADVANCED UTLS 2 Compress Disk doubles the capacity of your D on the fly with compressions. Also DiskOptimizer, SCSI Mount and more.
❑ ^* V1055 PARBENCH All the software you need to hookup 2 Amiga's or CDTV's.
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❑ ^+ V1059 GRAPHICS Create stunning graphical images. MPath creates swirling galaxy images. Roses, Rayshade
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❑ ^+ V1063 RIPPERS, STRIPPERS & BEATS For the music enthusiast, designed to strip music from your favorite games
❑ ^+ V1067 3D OBJECTS 3 About 20 objects in Sculpt / Turbosilver format
❑ ^+ V1069 PRINTER DRIVERS 5 Deskjet 550c, 500, 500c, Ricoh HP1200, Canon BJ300, 130, LPB, 10e, PJ1080a HP Paintjet.
❑ ^^ V1070 (AGA) UTLs 2 256 colour icon editor, Plamsa256, QuickGrab v1.1
❑ ^^ V1071 (AGA) MSM v1.8 Martins system monitor for programmers
❑ ^^ V1072 (AGA) WINBLENDER v39.28 Create excellent/stunning AGA fractals. Also contains 68030/040/FPU versions.
❑ ^+ V1073 FT-X ACCOUNTS v2.01 Was written as there are not ready any other good account packages.
❑ ^^ V1074 (AGA) UTLs 3 Collection of AGA Based utilities. Includes Kill AGA Which allows you to run old badly written programs incluing demos & some games
❑ ^* V1077 GENEALOGIST v3.04 Is a specialized database for keeping track of genealogical information. Full featured & a wide selection of features to use.
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❑ ^+ V1081 REPAIR-IT 3 Contains a selection of Disk, Hard Drive repairing and file saving utilities for the Amiga.
❑ ^+ V1083 CROSS v5.1 Is a program that creates crossword puzzles for you
❑ ^+ V1084 SPECTRUM EMULATOR V1.6 (2) This is the best & latest version of the most popular emulator for the Amiga. There is an 020/030 versions now on the disk which enhance the games on disk.
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❑ ^^ V1090 ANDYS (AGA) UTLs Another selection of utilities for A1200 owners also encludes FakeMem, KillAGA, AGATest, Degrader and much more.
❑ ^+ V1091 ASTRONOMY v2.0 A menu driven astronomy program that calculates information about the Sun, Moon, Planets and Constellations. Help Disk.
❑ ^+ V1092 HEROQUEST AID Will aid solo AD&D players who do not have a Dungeon master at the present time. It takes over the DMs role. Good or what
❑ ^+ V1093 PARNET SET-UP (2) A two way network file system between two parallel ports, establish via two amigas
❑ ^* V1095 DEGRADERS If you have trouble running software on an A1200 or A4000/030/040 give this disk a try it will emulate the basic 1.3 rom better than any other software on the Amiga at present.
❑ ^+ V1096 MING SHU CHINESE ASTROLOGY Will create a horoscope in seconds not hours. the complete gid.
❑ ^+ V1097 TITANIC CHEATS v1.40 Contains 950k of raw data which is just a whisker under 600 games Well presented
❑ ^+ V1101 RJ UTLs This disk contains helpful image processing and painting programs. Like Perfect Paint v1.34, Image Workshop v1.3, an IFF Manipulator.
❑ ! * V1102 DT UTLs Contains Border for WB v2.04+ machines, MakeKickFile, SKick v3.34, is a replacement for kick-it, Z Kick and LKick kickers. It will softkick any other version of kickstart into ram.
❑ ^+ V1103 TEK-ATAK MODULES An excellent helping of wonderful music for your own productions or to listen to.
❑ ^* V1104 COLOURED ICONS Transfer your disks into colourful well presented works of art with this database.
❑ ^+ V1105 VIEW TOOLS Contains Convert, ViewTree, a Famili tree eazy to use database progra. ViewPhone, an British telephone storage database. ViewDisk, is a small disk catalogue utility.
❑ ^+ V1106 MAJOR LEAGUE Allows you to keep track of your favorite teams and there results. Datafinder v2.4
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❑ ^+ V1123 DIGITAL DREAMS UTLs Contains Trax, ProMax, trax Map, Trans cruncher, Protect, VC, Scrabble II, Boot Block Change II and File Protect.
❑ ^+ V1124 FIRST ALERT VIRUS BootX, EVN v2.22, LVD v1.75, MVK v2.2, No Saddam, SnapShot, VC, Virus X, Virus Z.
❑ ^+ V1125 LEMMINGS 2 INSTALL This disk will install Lemmings 2 to your hard drive. 1Mb Chip RAM + 512k RAM
❑ ^+ V1129 RED DRAWF TRIVIA The ultimate Quiz and answers game.
❑ ^+ V1130 COMMUNICATE v1.2 A helping tool for learning one of the eight formats of cummunications or languages
❑ ^+ V1131 COPPIERS UNLIMITED AContains DCopy, FastEm, FastLightning, Maverick, Mirror, Nib, Raffle, Raw, Sanity, Super Duper and Tetracopy.
❑ ^+ V1133 NUMPAD v37.3 Emulates a numeric keypad on some Amiga Keys.
❑ ^* V1134 TOOLMANAGER v2.1 (2) Includes the ability to add menus to your Tools menu, add WB icons or Windows.
❑ ^* V1136 DISK UTLs 2 Copy_C A disk tool for making backup copies, form-atting ect. DiskMate A disk utl with multi drivedisk copier ect. DiskSalv v2.0 Disk repair, salvage and undelete utl. HDClick, a hard disk menu & workbench tool.
❑ ^^ V1137 (AGA) UTLs 4 AGATest, BBlank, CheckAGA, CycletoMenu, Doublex, Force VGA, GIF Datatype, PKludge, PPShow, Rend24, ViewTek & Vertauf
❑ ^^ V1138 (AGA) UTLs 5 Degrader, Pov-Ray, AmigaToDouble, CardMemLast, Palette, Promotor, RomTagMem.
❑ ^^ V1139 (AGA) UTLs 6 A4091Patch, Alert Timer, Bestd, Clouds, HamB JPEG, NewPOP, NTSC4NTSC, PatchPainter, Plasma PCX Data type & Screen Mode changer.

### AMIGA GAMES

❑ ! - 1073 TETRIS ORIGINAL This is the closest game to the original tetris.
❑ ^+ 1420 DTRIS If you want a 1 or 2 player Tetris this has to be 1 of them.
❑ ^+ 1749 SCRAMBLE The Original! Remember that old classic game from the arcades
❑ ^+ 1977 POM POM GUNNER Shoot down world war II air planes in this Operation Wolf
❑ ! - 2018 JETMAN Spectrum classic converted to the amiga, with all the original sounds.
❑ ^+ 2022 SEA LANCE The first Silent Service type sub war game on PD
❑ ^+ 2054 ATIC ATAC A rendition of the game from the original Spectrum
❑ ^+ 2164 DUNGEON ON NADROJ This is the best D&D adventure type game. Load Wb
❑ ^+ 2220 STRATEGIC GAMES Eternal Rome, Lords of Hosts, In Moonshine
❑ ^+ 2221 MIND GAMES 21 of the best games to challenge your mind
❑ ^+ 2272 BLACK JACK LAB Play all the popular versions of Pontoon
❑ ^+ 2278 CARD SHARP A professionally presented selection of solitaire games.
❑ ^+ 2280 DIPLOMACY Classic strategy game loosely based on World War 1. 2Mb
❑ ^+ 2411 TOTAL WAR Strategy world conquest type game. 1 or more players
❑ ^+ 2432 GOLDEN OLDIES Galaga, Galaxian, Space invaders, Asteroids, Batty & Missile Command
❑ ^+> 2447 COINDROP Fruit Machine simulator with various gamble modes.
❑ ! - 2448 CRAZY SUE Another first rate cute school girl platform game.
❑ ^+> 2480 FRUIT MACHINE 2 As near as poss to the Arcade machines
❑ ^+ 2485 IRONCLADS Updated Strategic War Game which is heavy on your mind (2)
❑ ^+ 2491 LEGEND OF LOTHIAN v1.02 An excellent adventure game in the vein of Ultima.
❑ ^+ 2498 AMOS CRICKET Is an excellent arcade cricket simulator with nice graphics.
❑ ^+ 2614 TETREN Is a 1 or 2 player Tetris game. The 2 player game is Head 2 Head.
❑ ^+ 2617 GOLDEN OLDIES 2: Croak, is a 1 or 2 player frogger. BiPlanes is 1 of the most addictive games we have played here. Trail-Blazer, as the C64 Classic. Scamble Shootemup
❑ ^+ 2620 DR MARIO You must move coloured pills down the screen. 3 in a row get's
❑ ^+ 2621 ETERNAL ROME Start the Roman Empire from 325BC. Build fleets, armies & attack.
❑ ^+ 2622 DONKEY KONG Original platform game in which you must rescue the girl
❑ ^+ 2676 MORIA v5.4 Loads of new features, better graphics, larger dungeons, screen updates, overview of dungen's map
❑ ^+ 2710 CLASH OF THE EMPIRES (2) v2.1 Strategical War game By T.A Sear
❑ ^+ 2724 NEIGHBOURS This is the best graphical adventure game to date (2)
❑ ! + 2738 AIR TRAFFIC CONTROL Try to guide upto 100 planes into the AirPort
❑ ^+ 2775 ROULETE ROYAL Why not do some gamble with chips at the casio
❑ ! + 2802 CARD-O-RAMA Sea heven, Crib Klondike, Black-jack, Spades, Street
❑ ^ + 2825 ALL ROUNDER A Cricket simulation with great graphics & play
❑ ^+ 2842 CRAZY SUE II Sequel to the all time best selling PD platform game
❑ ^+ 2854 SPACE INVADERS II A revised old classic Space Invaders game
❑ ^+ 2863 FIGHTING WARRIORS A karate combat fighting contest game

❑ ^+ 2932 NUMERIX Enjoy puzzles / Tetris then this is a must. You have a scrabble board & you must place tetris blocks to get points.
❑ ^+ 2941 EXTREME VIOLENCE Scrolls around much bigger than Smash TV
❑ ^+ 2987 BOMB JACKY A conversion as the original Bomb Jack, it's as the best yet
❑ ^+ 2988 BALDERS GROVE Its here Boulder dash with a selection of levels that work fully
❑ ^^ 3023 UCHESS (AGA) Do you love chess then try this. 4Mb & WB 3.0
❑ ^+ 3037 SSW Is a game for 2 based on Space Wars but with many extra features.
❑ ^+ 3038 TANK HUNTER A 2 player Tank Attack game with various levels
❑ ^+ 3039 ASTEROIDS II v0.85 This is the best version of Asteroids I have ever seen, if you like Asteroids games then this is for you
❑ ^^ 3040 TETRIS (AGA) If you like tetris, you need this disk. AGA graphics.
❑ ^+ 3075 18 HOLE GOLF (2) The first excellent golf game. Select speed & power
❑ ^+ 3162 SON OF BLAGGER This is a classic (64/Spectrum) platform conversion. Can you remember how active it is to play
❑ ^+ 3214 UNIVCONQ A strategy game where two human players battle for control of the universe. Status information is continually updated to allow the player to concentrate on strategy. Includes digitized pictures and sound.
❑ ^+ 3234 SYSTEM DEFENDER If Defender is the name of the game then this is the game for you, in true defender style it retains all features.
❑ ^ + 3235 ALIEN BASH The game is set inside a prison for the galaxys mentally unstable, you have been imprisoned there along with a bunch of your mates. Rescue your friends by shooting
❑ ^ + 3237 SKIDMARKS Racing game in which you skid around a nice track and win the race.
❑ ^+ 3252 BONDMINE 12 Well produced game in the vain of the classic Boulder Dash games.
❑ ^+ 3253 OPERATION METIOR This game is setin 3d graphics in which you must travel around traped in this graphic stunning adventure.
❑ ^- 3257 SUITCASE (2) The best adventure on the amiga to date. Excellent
❑ ^+ 3265 WIBBLE WORLD GIGGY Wibble World of Giggia Mainia hits town Yes you can enjoy the trills of controling an egg shaped character for free. Solve puzzles avoid the monsters
❑ ^+ 3269 BRAINBOW Is an original board game, which will have you taxing your brains for hours. Rather like a version of the pile-up Scrabble
❑ ^+ 3280 STRIKEBALL Is a version of baseball with a few rule changes. When the game commences you will see a normal baseball pitch & players positioned as inbaseball.
❑ ^+ 3283 NECESSARY ROUGHNESS (2) Puts you in charge of a team of your choise and lets you play a computer team, again of your choise. As headcoach you will have to call the playsthat you think will be most effective to the game. You will then be ableto see the action, followed by a breif summary of what you have just seen.
❑ ^+ 3285 THE ENTITY v1.1 You play the role or I should say control the stix and you're beinginvaded by the Entity. You are enclosed inside an electrofied which mustnot be touch.
❑ ^+ 3286 AIR HOCKEY Is a bat and ball game based on air hockey from the amusement arcades. Its a basic game for 2 players.
❑ ** 3287 ROAD TO HELL (2Mb) Is an overhead view driving game like Hotrod and super sprint. It requires skill and coordination for success. The aim of the aim of the game is to win the gold in the Championship by making more money that your opponent. Theres a helping extra which can be bought from the shop like enhancedtypes, Better Engines, Rockets, Smoke screens act.
^+ 3310 STARBASE 13 (2) Is a graphical adventure, simular in style to monkey island or Operation Stealth. The controls and what they do are fairly obvious.

### STAR TREK + SI-FI

❑ ^+ ... AT05 KLINGON D7 CRUISER fires torpedoes while passing by NCC-1864
❑ ^+ ... AT10 ENTERPRICES Leaves the Star station dock. NCC 1701-A classic original
❑ ^+ ... AT22 APPROACHING VESSELS
❑ ^+ ... AT23 STAR TREK FLEET MANEUVER
❑ ^+ ... AT33 THE PROBE II & BIRD OF PREY
❑ ^+ ... AT34 LEAVING SPACE OFFICE Docking, Attack mode, Bird of Prey Scout attacking
❑ ^+ ... 1060 STAR TREK *: TNG Game
❑ ^+ ... 1081 ULTIMATE STAR TREK (2) Game by Tobias Richter. Now in English
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| = | Works with Workbench 2.0 |
| + | Workbench 2.0+ Only |
| ^ | Works with Workbench 3.0 |
| ^^ | Workbench 3.0+ Only |
| > | Not A600 Machines |
| - | Not A500 or A600 Machines |
| ! | Not Workbench 3.0 |
| ?? | Requires ?? Amount of disks |
| ??Mb | Requires ?? Amount of memory |

### NEW DEMOS

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|---|---|
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| ❑ !+ 3338 | AQUARIUM MEGA DEMO |
| ❑ ^+ 3354 | FAIRLIGHT RAVE DEMO |
| ❑ ^+ 3290 | GRAPEVINE 16 (3) £4.00 |
| ❑ ^^ 3212 | (AGA) NIGHT BREED SLIDES (2) |
| ❑ ^+ 3136 | KEFRENS DESERT DREAM (2) |
| ❑ ^+ 3159 | SCOOPEX 2 UNLIMITED (2) |
| ❑ ^^ 3063 | (AGA) HOIS MEGA DEMO |
| ❑ ^+ 2921 | STATE OF THE ARTS |
| ❑ ^* 2815 | LAWNMOWER MAN (2) |
| ❑ ^+ 2858 | JESUS ON E'S / LSD (2) |

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The Aminet collection is global in scope, containing many programs from North America, Europe, and elsewhere. There is a huge library of programming tools, technical documents and other software for developers. This CDROM contains hundreds of demos of commercial software, so you can try before you buy.
This disc contains tons of source code, including the entire comp.sources. amiga archive, which is an invaluable resource for any programmer. Most of the source is C. The Amiga implementation of the TeX typesetting program is included, with MetaFONT and dvi filters. There are dozens of business programs. There are hundreds of images, animation and graphics programs. The disk contains many modem communication programs and BBS software.
The Aminet CDROM is in ISO-9960 format, so you can read this disc from nearly any system, including Amiga and IBM PC, BBS index files are included for popular MSDOS BBS's. This disc is brand new in 1993. Also contains Workbench 2 and Workbench 3.0 software.

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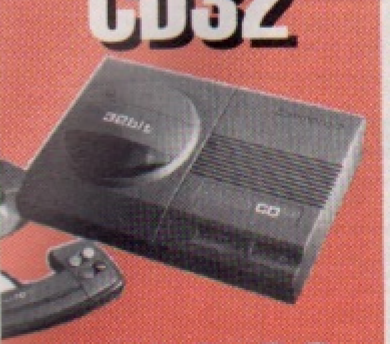
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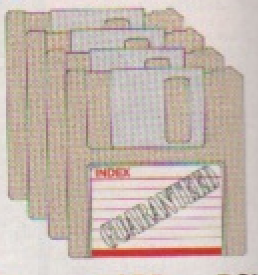
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» V.32: This is another CCITT 9,600bps communication standard, this time with fall-back speeds of 7,200bps and 4,800bps. This uses QAM with Trellis coding.

V.32bis: This is much the same as V.32 but goes that bit faster at 14,400bps with an additional fall-back speed of 12,000bps.

V.42: This CCITT standard is not for modem speed, but for error-correcting. It details the way in which a modem requests retransmission of un-verified data blocks. It is also known as LAP-M for no good reason.

V.42bis: This is the CCITT standard for data compression using the Lempel-Ziv encoding algorithm. It is more effective than MNP.

V.Fast: This is the proposed CCITT standard for data communication at speeds up to 28,800bps, and incorporating new techniques to improve noise immunity. It will probably be known by the more boring V.38

## ERROR CORRECTION – WHAT YOU NEED TO KNOW.

By far the most common form of error correction are the MNP standards, which were originally developed by Microcom Ltd and are now in the public domain. The term ARQ (automatic repeat request) is used to denote a connection taking place under error control. Error free data transmission is made possible (in theory) when then modem at each end of the link is capable of the correct error-correction protocol, and comprises of two main techniques: error detection and retransmission. Data buffering and flow control MNP levels 1 to 5 can be thought of as concentric shells with level 1 at the centre and level 5 at the outside, with as many levels as possible, starting at the centre, being used by the modems.

Whenever a modem connection is first established, the two modems 'negotiate' between them to decide on which error-correction level to use. This is limited by the modem with the lower abilities of the two.

First of all the modems agree on which, if any, of the first three error levels to use, and if one is decided upon, negotiate again on whether or not to use the additional level 4 or 5 or to use both.

Level 1: This level is often called 'block mode' and supports half-duplex transmission. The sending modem transmits a block of data and waits for an acknowledgement from the receiving modem before sending the next. Level 1 is the slowest level and is only ever included to ensure compatibility with older equipment.

Level 2: This level, as with all higher ones, supports full duplex transmission, in which data flows in both directions at the same time. Connections at level two only achieve 84% of the modem's normal throughput due to overheads caused by the addition of protocol characters and blocks of the error correction itself, and so a modem running at 2,400bps will only transmit 202 cps rather than the expected 240 cps

Level 3: This is a more efficient implementation of level 2. modems sending at this level strip the start and stop bits from the data characters and transmit the data across the link in a bit stream rather than in character format. The receiving modem then »



# Supra v32bis Fax modem

### SUPRA PRICE £249.99

When you exceed the £200 limit you expect to get a great deal more for your money, and by golly the Supra delivers.

This modem is something a bit special and if you don't believe me, a quick glance at the front panel should convince you: there may be only LEDs on the front, but a twin dot-matrixed LED display more than makes up for lack of lights.

As the modem operates, the panel flashes the lights to keep you informed as to what is going on. And what is usually going on is some pretty darn fast data transmission.

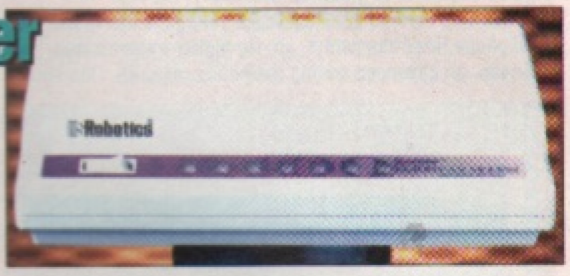
The speeds this little box clocked up were amazing, with the second-fastest file download of any modem under test.

This modem would have been on the top of my list, if only it had been cleared with BABT. As it is, I cannot bring myself to say this modem is the one I'd recommend.

But I'm winking.

**90%**

# US Robotics Sportster



### US ROBOTICS PRICE £279.65

Looking more like an alarm clock radio than is natural, the Sportster from US Robotics has a design you'll either love or hate. It's hard to imagine that this tiny box contains enough in the way of advanced electronics to blast data around at 14,400 bps, but that's exactly what it does.

Combined with the MNP level 5 and v42bis data compression, data rates of up to 56,000 bps are theoretically possible when another MNP5/v42bis modem in on the other end of the 'phone line. Note that for the fastest possible transfer rates, a reasonably fast Amiga certainly helps. A fast modem is capable of supplying data faster than a bare 68000 can cope with, so check on what can be the weakest link in your data communication chain.

In use, the Sportster was my favourite of all the modems on test. It consistently got through first time, every time to my test site and up and downloaded data without a hitch. With such speed and reliability in one small box, the Sportster gets my 'best on test' award. It's so good, I think it's about time I upgraded to one myself...

**91%**

### US ROBOTICS PRICE £503.99

This amazing top-of-the-range modem is unique in that it's a dual standard device. Not only does it work with the extra fast 14,000bps mode of the Sportster and Supra, but it uses US Robotic's own HST (high speed transfer) protocol.

If both modems in a link-up support HST, data rates of up to 16,800 bps are possible which is close to the maximum rate possible. Well, not that close as the Courier is promised to be upgradable to the absolutely amazing rate of 28,800 bps when the standard is finalised. Externally, the finish of the Courier is disappointing. Although the controlling DIP switches are easily accessed, the plastic case feels cheap and switches are tacky. A nasty buzzing sound doesn't help the overall impression.



Of course, it's what is inside that counts and the Courier is quite simply the fastest modem generally available.

The Courier gets the last word in this round-up: for the fastest possible data rates, and a degree of almost unheard of future proofing, the Courier is technically state of the art.

**89%**

| Product | Price | Fastest Data | MNP | FAX | v42bis | BABTapproved | Memory |
|---|---|---|---|---|---|---|---|
| Pace Microlin FX | £205.63 | 2400 | 5 | Y | Y | Y | 20 numbers |
| Supra modem 2400 | £74.99 | 2400 | - | N | N | N | 4 |
| Supra FAX modem Plus | £119.99 | 2400 | 5 | Y | Y | N | 4 |
| Supra FAX v32bis | £249.99 | 14400 | 5 | Y | Y | N | 4 |
| PhonePak | £349 | n/a | - | Y | Y | N | unlimited (software) |
| US Robotics Courier | £503.99 | 14400 | 5 | Y | Y | Y | 4 |
| US Robotics Sportster | £279.65 | 16800(*) | 5 | Y | Y | Y | 4 |

(*) *in HST mode, 14,000 in v32 mode.*

| Data Speeds | Raw Text | LHA archived |
|---|---|---|
| Pace Microlin FX | 198 | 162 |
| Supra Modem 2400 | 204 | 171 |
| Supra 2400 FAX | 204 | 154 |
| Supra v32bis | 2334 | 1125 |
| US Robotics Sportster | 1535 | 1490 |
| US Robotics Courier | 2652 | 1547 |

Tested by downloading files onto an A4000/030.
Speeds are in characters per second, to get bits per second multiply by ten.

## SPECIAL THANKS

CU Amiga would like to thank the First Computer Centre of Leeds for supplying all the modems we reviewed this issue (except the Phone Pak which came from Silica). If you'd like to know more about any of the modems we have reviewed in our Buyer's Guide, then give them a ring on 0532 319444. We're sure you won't be disappointed.

# MODEMS HOW THEY WORK

Modems are designed to transmit computer data from one computer to another, using an ordinary telephone line. This might sound easy as we have no problems using them, but for a computer there are several hurdles to overcome.

The main problem is one of 'bandwidth', which is a value related to the highest frequency a signal can have if it is to be transmitted down a line. The larger the bandwidth, the larger the amount of information which can be transmitted. Unfortunately, the standard voice telephone is designed mainly for voices, which have a very small bandwidth. The challenge when designing a modem is to pack as much information into the bandwidth as possible.

Figure 1 shows an FSK signal in operation. Notice that the constant base signal, the carrier, is altered by the presence of digital data. Everytime a '1' is transmitted, the frequency of the carrier is altered. If you were to listen to an FSK signal, you would hear a single tone, rapidly moving up and down in pitch. Unfortunately, the FSK modulation method does not make very good use of the telephone lines bandwidth, so, for higher transmission speeds, an advanced coding method is required. One such

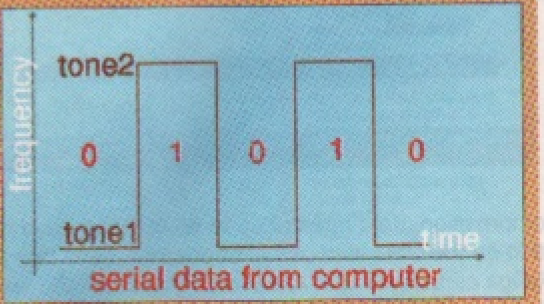



*Figure 1: Inside the modem, the received serial data from the computer is used to modulate (alter) the frequency or tone of a carrier wave. At the other end of the telephone line, a demodulator converts the differing frequencies back into binary pulses.*

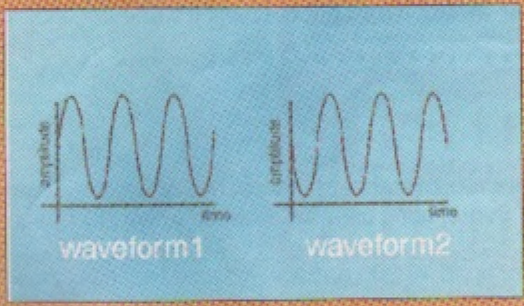



*Figure 2: Phase shifting more advanced technique than frequency shifting, although it's a bit harder to visualise. Look where each wave starts. They are said to be 90 degrees out of phase. By altering the phase angle depending on the serial input, very high transmission speeds are possible.*

technique involves altering the phase information of a carrier wave, rather than the frequency. Think of the phase as the amount the wave is delayed – see Figure 2.

The modem receives a binary digit, but instead of transmitting it directly, it waits for a second. These two digits can form four different combinations or codes (00,01,10 and 11) and for each carrier wave a different phase is transmitted. Using 'Phased Shift Keying' speeds of up to 9600 bits a second can be achieved. The quickest modems use a 'trellis' coding technique, which combines the modulation process with the coding process to achieve speeds of 14,400, 16,800 and 19,200 bits p/sec.

Where will it all end? We know the answer. As the telephone line has a fixed bandwidth, calculations have shown that the absolute fastest transmission rate possible is 23,000 bits per second. So, I'm looking forward to the forthcoming Courier 28,800bps modem.

» re-inserts the start and stop bits in the appropriate places. This procedure offsets the protocol overhead and achieves a throughput of about 108% of the modems normal operating speed.

Level 4: At this level the information in the headers of data blocks is streamlined to eliminate more of the protocol overhead. Throughput gains at this level can range from another 5% over level 3 to another 25%, depending on the quality of the line. Additionally, the size of the data frames is greater than in level 3.

Level 5: This level incorporates data compression, with the sending modem detecting redundant units of data and recoding them into shorter units of fewer bits. This works in much the same way as the sort of file compression you may already be used to.

## HOW IT WORKS

The actual error detection works in the following way. During an ARQ connection, the modem divides the data into blocks, each block having header and trailer information. A block along with its header and trailer is known as a frame.

Included in the header or trailer are a frame number and block size information as well as a checksum code derived by performing an algorithm on all the data in the frame. This is known as Cyclic Redundancy Checking (CRC). The receiving modem performs the same algorithm on the data block and if the results match, sends a positive acknowledgment to the sending modem. If the CRC codes don't match, the receiving modem initiates the ARQ procedure and tells the sending modem which frame is in error and doesn't accept any more frames until the faulty frame is correctly received.

Upon receipt of an ARQ, the sending modem restarts transmission from the faulty block. It may be that an ARQ occurs over and over for the same block (perhaps due to a serious disturbance in the phone connection).

The usual maximum number of times allowed for this to happen is 12, after which the modem will hang up the line. For fairly obvious reasons this is known as ARQ retry timeout. Alternatively, if the modems involved are capable of it, they will 'fall back' to a slower communication speed before timing out.

# CYBERSPACE: THE FUTURE? 57 CHANNELS AND NOTHING ON




It won't be long before television signals are pumped directly into your home via digital networks, and it won't be just one or two either; the number of channels is likely to be in the realm of hundreds or even thousands. The bandwidth of optical cable systems is immense, and although the technology behind the transmitters and receivers has still to be perfected, the time is coming when a single cable can carry more information into your house than you will know what to do with.

As well as the normal domestic TV stations there will be dedicated shopping channels, extra-local public access channels and channels run by commercial companies, large and small. This leads to some interesting ideas. How, for example, will you know what to watch and what to ignore? With so much going on, how can you possibly be sure of getting the facts you actually need to know?

Much thought has been expended on this problem, and one solution is the creation of software agents. Your 'agent' is a computer program operating on your behalf, programmed to scan through the vast array of material and keeping an eye out for particular areas of interest. Your agent is programmed with your goals, and knows all about getting the various on-line services to get the facts. You might want your agent to get the latest local weather forecasts, news and sports results every morning. You might want it to book flights, arrange meetings or order your groceries.

## TELECOMMUTING

As modems and fax facilities become more affordable, many people are questioning their reasons for working in a traditional office. Many jobs consists of answering the telephone, doing paperwork (on word processors of course) and sending and receiving faxes. For some, the expense of office space and travelling is simply not viable. Many computer journalists, for example, work from home – sending copy to the magazine offices via modem.

## CYBERSPACE

In America, where telephones are grafted on at birth, computer communications have formed the creation of new life forms. These beings sit at home in front of computer screens, living their lives in 'Cyberspace' – a different form of reality. From their terminals they can chat to friends, form relationships and even get married, without leaving their room. They buy from on-line mail order centres, who deliver everything from new computers to food, paid for by credit card of course, and delivered within hours. Some have been heard to say, "My life in Cyberspace is more important than my real life". Is this where the future lies? By the year 2000 will we all be staying at terminals, living super-real virtual lives? CU

## FLOW CONTROL – WHAT YOU NEED TO KNOW

Modems store data from the host computer in their transmit buffers, and data received from a remote modem is correspondingly stored in the receive buffer. Flow control is the modem's method for ensuring that the buffers do not fill up, causing data loss. It can be controlled from the modem's hardware or indirectly by the driving software. Under hardware control when transmitting data, the modem sends, or stops sending the 'clear to send' (CTS) signal to the host computer, if its transmit buffer is approaching capacity. Stopping this signal physically stops the computer from sending any more data.

Software flow control on the other hand is achieved by the modem sending the ASCII XON/XOFF characters to the computer, which then stops or starts sending the data as required. Receive flow control is carried out in a similar way. The software can send the Request to Send (RTS) signal to the modem to control reception.

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D2...Intercepter Demo
D4...Wild Copper
D10...17Bit Music Demos
D11...World Demos 21
D13...Total Remix Demo
D14/15...Predators(2)
D20/21...Red Sector(2)
D24/25...New Tek Reel3(2)
D26...Total Remix 2 Demo
D27...T.V. Theme
D30...Epic Demo
D34...P.D. Collection
D36...Virtual Worlds
D37...Vectra Sinking Demo
D38...TFF Demo Voyage
D40...Safy Demo
D59...Video Effects 3D
D64...Cult Vector Dance 2
D68...Phenomena Demo
D70...Amos 3D Demo
D74...A Trip To Mars
D76...A2000 GenlockDemo
D81/82...Budbrain 1 (2)
D83...Budbrain 2
D85...Crionics Neverwhere
D87...pirhana demo
D101..Alcatraz M/Demo 3
D102..A Chaplin Demo
D103..Total Destruction
D105..Mr B Demo Comp 4
D106..Walter S.T. Demos
D111..Defcon 1
D117..Aurora M/Demo
D118..Cult M/Demo 2
D125..Precise Demo
D133..Fasination
D136..Goldfire Megademo
D137/138..So What (2)
D139..Devils"No Reality"
D144..The Silents "Ice"
D145..Crystal Symphonies
D148..Ray Of Hope 2
D149..No Brain No Pain
D158/159.Cyborg Demo(2)
D195..Coaxial Comp
D197..MC Disk 1 Coma
D199..End Of Century 1999
D206..Dreamers 3
D208..Avengers M/Demo
D216/217..Bass o Matic (2)
D218..Disorder Demo
D219..Tuff Enuff
D225..Cool Fridge Demo
D226..Hardcrack M/Demo
D233..Hypnautic Hammer
D235..Six Of One Demo
D238..Planetside
D239..Lemmings Revenge
D240..Total Respray
D243..Budrain 3
D244..Phenomena Inerspace
D245..Total Retrial
D247..Pulling The Trigger
D253..CES Demos
D256..Total Recount
D257..Total Rebate
D262..Spasmolytic
D264..D-Mob M/Demo
D267..Sun Connection 2
D270..Kefrons The Wall
D271..Timex Hydra
D272..Electric Demos 1
D274..Defpackers Demo
D276..Cave La Weird
D279..Iraqi Demo
D280/281..Delerious (2)
D290..Popeye Demo
D292..Excalibur Demo
D298..Silents+Anarchy
D301..Subway Demo
D302..Tarot Demo
D303..Despair Demo
D307..L.S.D. Demo
D312..Devils Colours
D314..Trakmo
D315..The Groove Ramjam
D322/323..Star Wars (2)
D325/326..Real Empathy(2)
D328/329..Red Dwarf (2)
D330..Darkness M/Demo
D332..Melted Expirience
D333-337..Odyssey (5)
D338..Beastie Boys Demo
D340..Watchman Demo
D341..Anarchy Smoker Co
D342..Ed 209 The Revenge
D343/344..Hardwired (2)
D346..Wildfire M/Demo
D347..Mindwarp M/Demo
D348/349..Skizzo Demo(2)
D350-352..Treacle Team(3)
D358..Mr Men Stories
D359..Seeing Is Believing
D360..State Of The Art
D361..Mayday Resistance
D362/363..Jesus On E's (2)
D364..Fish Tank
D365..Optimum Pressure
D366..Mind Riot
D367..InThe Can Demo
D368..Dynamic Illusions
D369..Piece Of Mind
D370..3D Demo 2
D371..Lethal Exit

## UTILITIES

U1...Games Music Creator
U21...The Comms Disk
U32...Modem Utils
U34...Red Devils Utils 1
U36...Soundtracker Special
U38...Paint,Music,Media
U39...Card Designer
U40...Spectrum Emulator
U41...Red Devils Utils 4
U43...Future Composer
U44...Kefrons Makeboot
U45...P.E Giant Utils 168
U47...Label Designer
U49...Ultimate Icon Disk
U50...Power Comp Utils
U51...Jazz Bench
U55...Visicalc
U57...Quickbench
U59...Font Designer
U60...D-Paint Fonts 1
U61...D-Paint Fonts 2
U62...Med 3.20
U63...Direct Anim Creator
U64...Crossword Designer
U66...CLI Help + Others
U67...S/Tracker Mega
U68...Ultimate Boots 1
U69...Ultimate Boots 2
U73...Powerlogo
U74...M-Cad
U75...Journal Home Acc's
U76...Home Utilities
U77...Electrocad
U78...Ami Base
U81...Bootbench V2.0
U82...Slideshow Maker
U83...Catalog Workshop 1
U84...Catalog Workshop 2
U87...Hard Disk Utils
U89-94...Amateur Radio (6)
U95...C-Light + Others
U96...GFX Utils 1
U100...Ham Lab
U101...Sid V2.0
U108...A-Gene
U113...Midi Utilities
U118/119...Video Utils (2)
U132...GFX Utils 2
U133/134...North C (2)
U136...CrossDoss (demo)
U138...Squid Squad Utils
U139...Terminalities V1.0
U140...Squash 1 (2.04 only)
U141...Squash 2 (2.04 only)
U142...Text Plus 3
U144...Dennis Samples 1
U145...Digital Intro Design
U146...Viz Clip Art
U147...Spectrum Emulator
U151...Slipstream V/Killers
U152...Red Devils Utils 6
U154...Amigafox W/P
U155...P.D Utils Docs Disk
U163...Quickbench + (2.04)
U164...Rim Database
U166...Dennis's Hack Disk
U167...Demolisher Utils
U168...Home Business 3
U172...Squelch (1.3 only)
U176...GFX Utils 3
U177...Star Charts
U179-180...Dice (2)
U181...Celtic Demo Maker
U186-206...Track Ins 10-30
U207...Icon Collection 1
U208...Dave Jones Fonts 1
U210...Ultrapaint 3
U211...Chemesthetics
U212...Animated Pointers
U213...Desk Top Publisher
U214...Deskbench Icons
U215...Messy Sid 2
U216...Master V/Killer 2.2
U218...Data Base Wizard
U223...Ten Pin Data Base
U224...Q-Base Data Base
U226...Games Solutions 1
U231...D-Paint Fonts 3
U232...Games Cheats 2
U234...Flexi Base
U235...Ami Cash V1
U238...Iconmania
U240...Icon Editor
U252...Opticomms 2.0
U254...New Superkillers 2
U255...Protracker v2.0
U256...Atari ST Emulator
U258...D-Copy 3
U262...PC Emulator
U263...Med 3.21
U273...Vidi Fonts 1
U274...Illinoi Labels
U275...600 Business letters
U279...Invoice Printer
U280...Woman V2.02D
U283...Headline Fonts
U289...Amos Updater
U290...Kickstart 2.04
U292...Black Tiger Utils 1
U293...Black Tiger Utils 2
U294...Text Engine V4.0
U295...Game Tamer
U296...Ultimate Disk Crea
U297...10 PD Copiers
U298...Protracker V3.0

## GAMES

G1...Return To Earth
G2...Games comp 5
G3...Dizzy Lizzy
G4...Scum Haters
G5...Parachute Joust
G6...Frantic Freddie
G8...Twintris
G9...Psuedo Cop
G10...Drip
G11...Bug Bash
G12...Asteroids
G13...LLamatron
G14...Escape From Jovi
G15...Moria Adventure
G16...Ground Attack
G17...Megaball
G18...Insiders Club
G19...Various Adventures
G20...Battleforce
G22...Dragon Cave
G24...Rings Of Zon
G25...Mayhem
G26...Mechflight
G27...The Tennis Game
G28...Flaschbier
G29...Buck Rogers
G30...Greyslayer
G31...7-Tiles
G32...Mega Comp 1
G33-34...Star Trek 1 (2)
G35-37...Star Trek 2 (3)
G38-39...Mechforce (2)
G40...Klondyke
G42...Car
G43...Games Comp 2
G44...S.E.U.C.K. Games
G45...Sacc Games Comp
G46...Games Comp 3
G48...Rays Game Disk
G49...Games Comp 4
G50...Games Comp 6
G51-52...Tracking (2)
G53...Jetpac
G55...Quick And Silva
G56...Miniblast
G57...Lamer Game
G58...Games Comp 7
G59...Games comp 8
G60...Pom Pom Gunner
G61...Caverunner
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G64...Eternal Rome
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G88...Raphaels Revenge
G89...Snake Pit
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G92...Blizzard
G93...The Maze Game
G94...Subculture
G95...Hollywood Trivia
G97...Shootout
G99...Holy Grail Adventure
G100...Amos Coindrop
G101...Classic Comp 1
G102...Card Games 2
G103...Super Skoda Chall
G104...Grand Prix Sim
G105...Games Comp 9
G106...Computer Conflict 2
G107...Mission X Raid 2
G108...NU Game
G109...Antep + Slot Cars
G110...Tricky + The Turn
G111...Marble Slide
G112...Games Comp 10
G113...Black Jack Lab
G114...Dungeon Of Madroj
G115...Amiga Columns
G116...Robocop In Iraq
G117...Mutant Camels
G118...Games Comp 11
G119...Number Fumbler
G120-122...Warlock (3)
G123...Card Sharp 1
G124...Bart Simpson
G125...CC Games Comp
G126...Air Ace 2
G127...Breakout Con Kit
G128...Pipeline
G129...Dung Of Doridian
G132...Peters Quest
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G163...Sea Lance
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G168...Wastelands
G170...Space Blitz
G171...Crazy Sue
G172...Make A Break
G173...Squamble
G174...F-1 Challenge
G175...Othello
G178...Evil Dead Game
G179...Trainset
G180-181...P Comps 1+2
G182...Diplomacy
G183...Tractor Beam
G184...Motor Duel
G185...Game Boy Tetris 2
G186...Water Works
G187...Act Of War
G188...Mutants Games
G189-193...Timelords 1-5
G194...Nirvana
G195-196...Neighbours (2)
G197...Ameoba Invaders
G198...Game Boy Tetris 1
G199...Tetren
G200...Battlecars 2
G201...Dr Mario
G204...Ashido
G205...Cheats Disk 2
G206...Cheats Disk 3
G207...Next Generation
G208...Airport
G209...F.R.A.C.
G210...The Golden Fleece
G211...Legend of Lothian
G212-214...Timelords 6-8
G215...Amos Games 1

## SLIDES

S1...Ham Pics Show 1
S4...Madonna slides
S5...Moviestar slides
S6...Party Disaster
S8...Immaculate Collection
S9...Simpsons Slides
S10-11...Channel 42 (2)
S12...Bruce Lee Slides
S14...Adams Family
S15...Viz Mag Slides
S16...Boris 13
S17...Docklands Jarre
S18...Dr Who Demo
S19...Napalm Death
S20...Nasa Slides
S21...Exodus 3D Slides
S22-24...WWF Slides (3)
S26...Cascade Demo
S27...Demons Slides
S28...Total Recall
S29...Joe's Slides
S30...Ham Pics Show 2
S31...D-Paint Slides
S32...Neighbours Slides
S33...Roger Dean slides
S34...Iron Maiden Slides
S35-36...Tobias Richter (2)
S37...Joe Trsi Slides
S38...Basket case 2
S39...Eces Slides
S40...Fraxion Devine 2
S41...Fraxion Devine 1
S42...Golems Gate Slides
S43...Chainsaw Slippers
S44...Cry For Dawn
S45...Forgotton Realms (2)
S47...Kick Off 3 Slides
S48...PD Slideshow
S49-52...Terminator (4)
S53...Robocop 2 Slides
S54...Trackmaster Slides
S55...Forgotton Realms 2
S56...Garfield Slides
S57...Pawnbroker Slides
S58...Hellraiser Slides
S59...Night Breed Slides
S60...Raytracing
S61...Horror Slides
S63...Tate Gallery 2
S64...Rock Star Manager
S65...Images Slides
S70...Muscle Mania
S71...Creature Comforts
S72...The Wonder Years
S73...Watership Down
S75...Ferrari 348 Pics
S76...Belinda Carlisle
S77...Cher Slides
S79...Freddies Dead
S80...Wendy James Slides
S81...The Invisible World
S82-83...Terminator 2 (2)
S84...Fantasy Pics
S85...Gulf War Slides
S86...Magical Pics
S88...Gulf War Tribute
S89-90...S/Thing Fishy (2)
S91...Eldorado Slides

## ANIMS

A1...Probe Sequence
A2...Ghost Pool
A3...Jogger + Magician 1
A4...Gymnast Demo
A5...Fractal Flight
A6...Basketball Demo
A8...Walker Demo
A9...Magician 2
A10...Pugs In Space
A11...Luxor Teenager
A13...Juggler Demo
A16...Cool Cougar
A17...Mono Cycle Anim
A18...Robocop Anim
A20...Mayhem On Wheels
A21...Jugette 2
A22...Shuttlecock Anim
A23...T-Pot Anim
A27...Fleet Manouvre
A28...Billiard Anim
A29...E/Prise Leaves Dock
A30...Starwars 2 Anim
A31...Star Trek Anim
A32...Fraxion revenge
A34...Madonna Anim
A35...Stealthy Anims 2
A36...Raiders Of The L/Ark
A37...Bugs Bunny Show
A38...Iraq V's UK Anim
A39...Mike Tyson anim
A40...Knight Anim
A42...Walker 2
A43...Walker 3
A45-46...Light Cycle (2)
A47...Exploding Head
A48...Police Car Chase
A49...Top Gun Demo
A50...Animators Demo
A51...5 Ways To Kill a Mole
A52...Another 5 Ways
A53...Batman The movie
A54...3D Spaceship
A55...Mr Potato Head
A57...Camouflage
A58...VGA Anim 4
A59...Low Level Flight
A63...Amy V's Walker
A64...Real Pinball Anim
A65...Franklin The Fly
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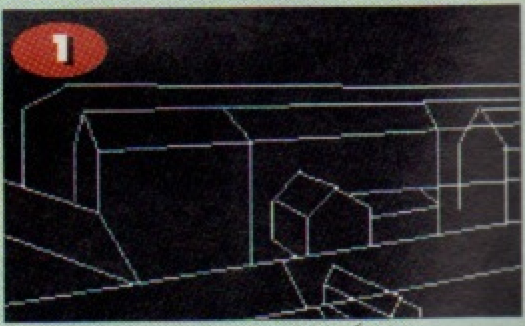
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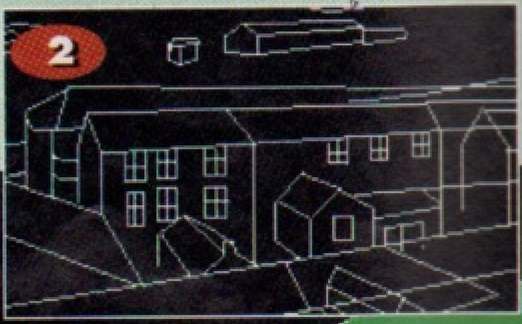
**Isn't it amazing what you can do with your Amiga and a bit of graphics software? Here's another selection of stunning Amiga graphics from the oh-so-artistic readers of CU AMIGA.**

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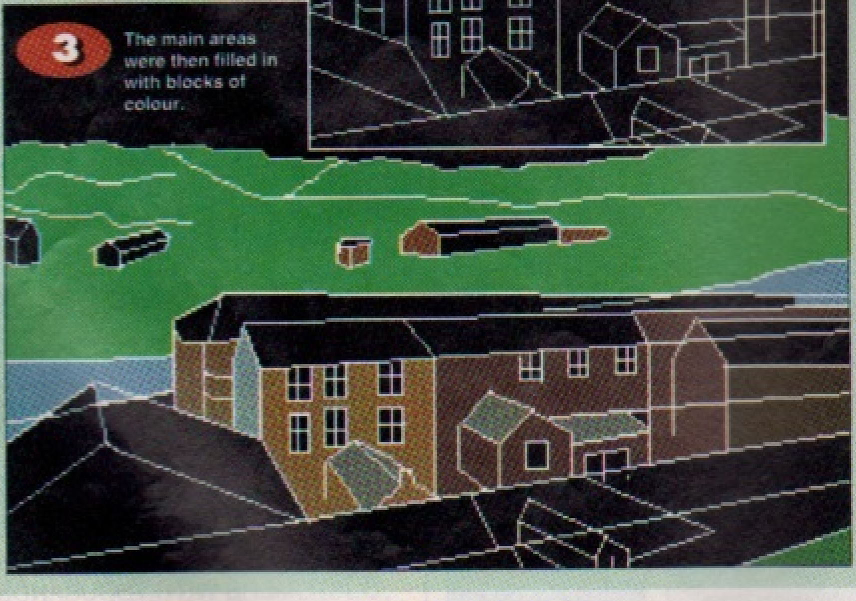
**Boris Lain**'s simple landscape shows that the old school of art is still alive and kicking.



1 Simple black and white outlines were used to sketch out the foundations of this scene.



2 More elements were then added as mono-sketched outlines.



3 The main areas were then filled in with blocks of colour.



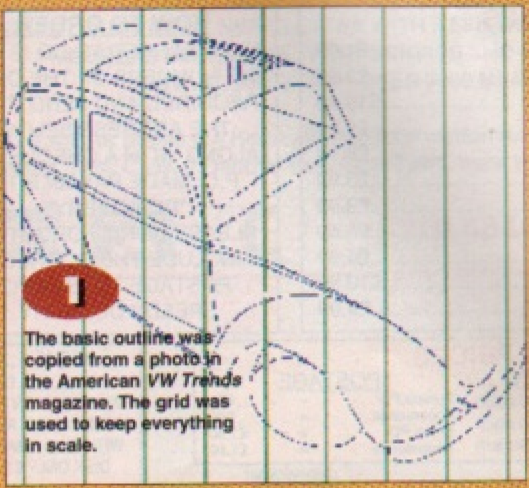
4 Now it's time to add some detail to the scene, such as bricks on the houses, and some texture on the fields.



5 A typical British sky was all that was needed to add a final touch of realism.

## VW BEETLE

**Peter Feetham**'s rendition of a VW Beetle is one for all you car lovers. It was drawn with 16 colours in hi-res using *Dpaint III*.



1 The basic outline was copied from a photo in the American *VW Trends* magazine. The grid was used to keep everything in scale.



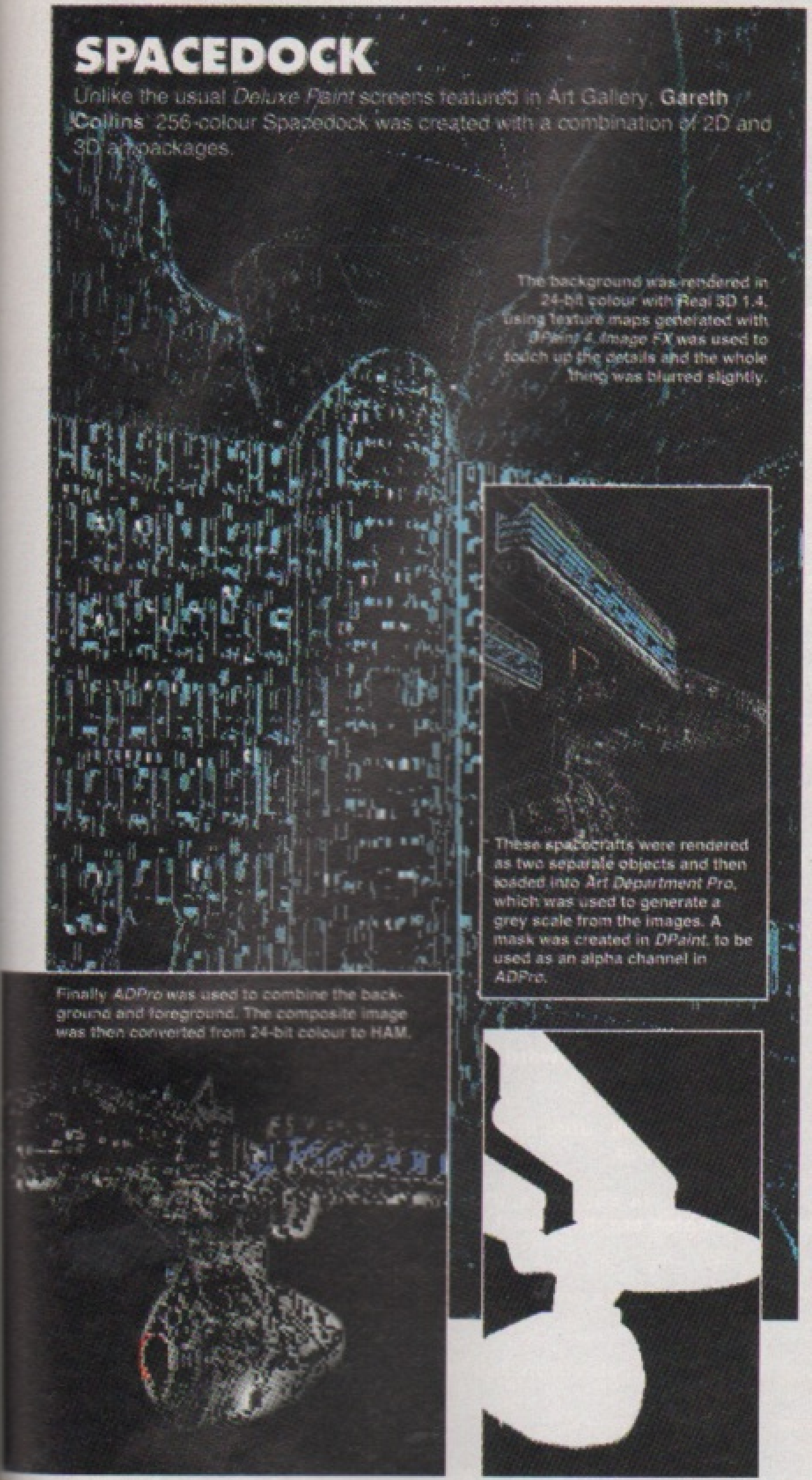
2 After removing the grid, a few simple details were added.



3 With the outlines complete, the main areas were coloured in.

## SPACEDOCK

Unlike the usual *Deluxe Paint* screens featured in Art Gallery, **Gareth Collins**' 256-colour Spacedock was created with a combination of 2D and 3D art packages.



The background was rendered in 24-bit colour with Real 3D 1.4, using texture maps generated with *DPaint 4*. *Image FX* was used to touch up the details and the whole thing was blurred slightly.

These spacecrafts were rendered as two separate objects and then loaded into *Art Department Pro*, which was used to generate a grey scale from the images. A mask was created in *DPaint*, to be used as an alpha channel in *ADPro*.

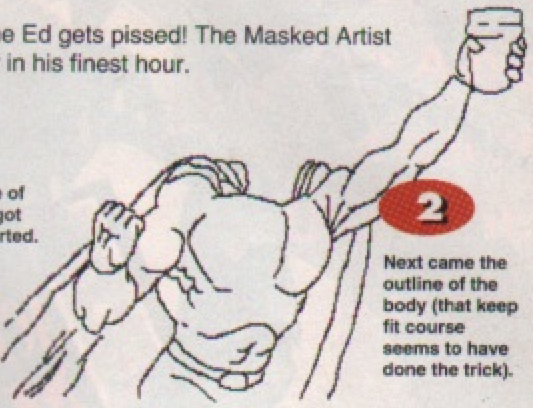
Finally *ADPro* was used to combine the background and foreground. The composite image was then converted from 24-bit colour to HAM.

## SUPER ED!

When the going gets tough, the Ed gets pissed! The Masked Artist captures Captain Pea-bladder in his finest hour.



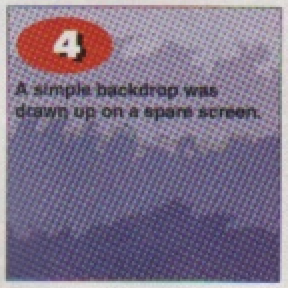
1 An outline of the head got things started.



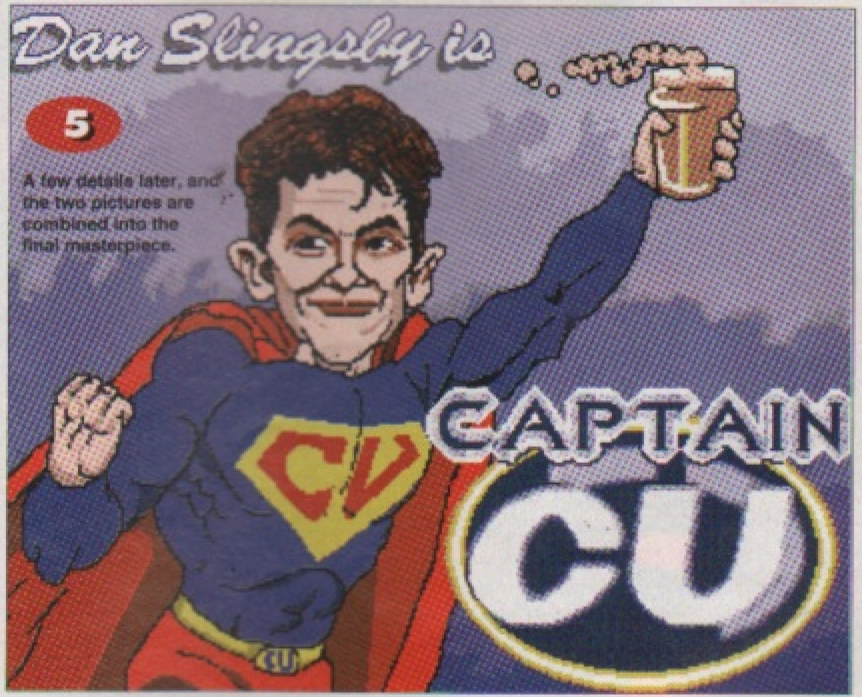
2 Next came the outline of the body (that keep fit course seems to have done the trick).



3 Next colour was added to the body and head – a fetching little outfit don't you think?



4 A simple backdrop was drawn up on a spare screen.




5 A few details later, and the two pictures are combined into the final masterpiece.



4 Further details and shading followed.

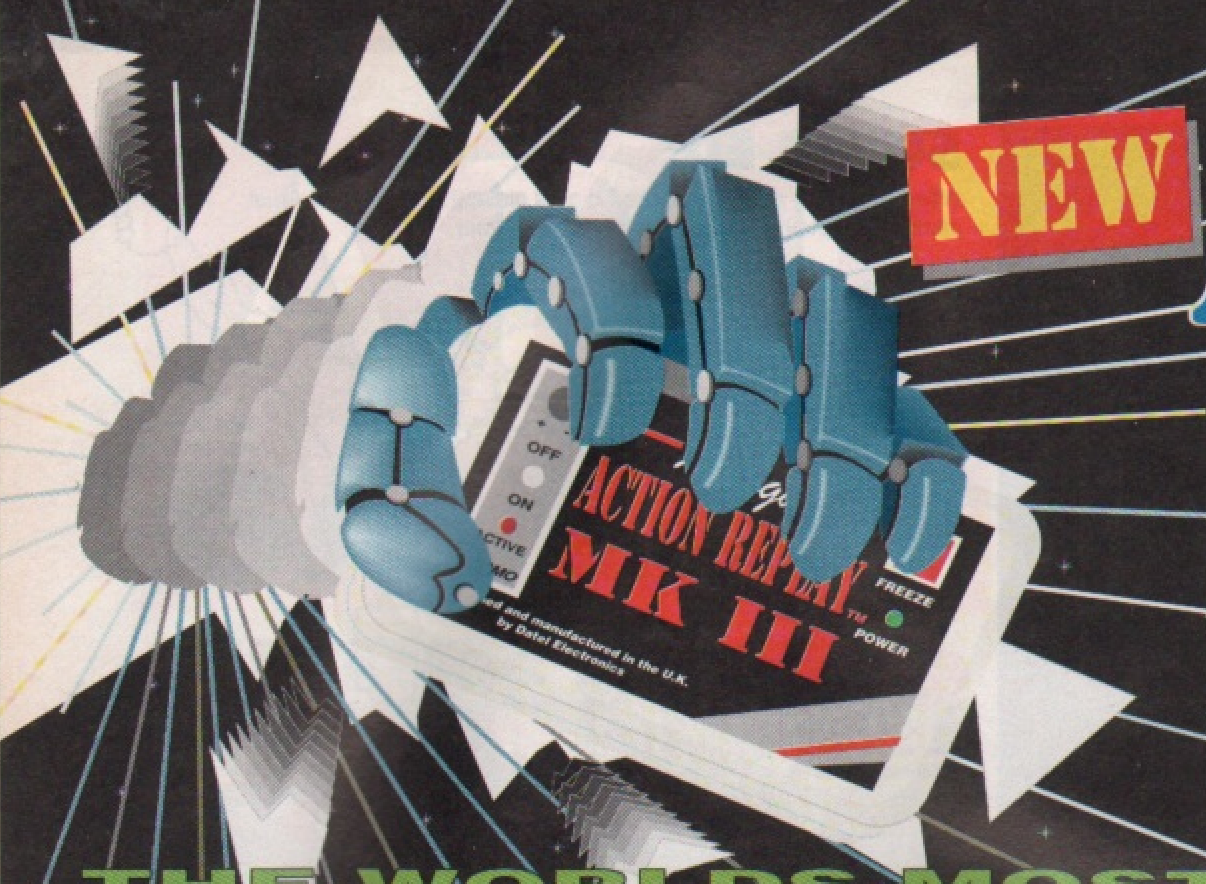


5 Finally, the car was finished, complete with textured interior and sporty wheels.



6 In the true spirit of VW Beetling, a psychedelic backdrop was pasted behind the main image. How about a split-screen van next time?

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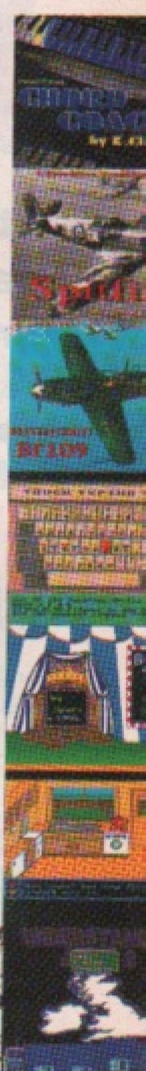
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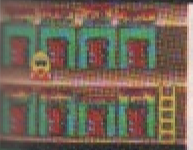
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| EPS5 Children US Insignia Places. | EPS14 Houses Old English Vacation. |
| EPS6 Boats Food Moving. | EPS15 Books Females Light aircraft. |
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***Please ensure that you can use this clipart, it is NOT iff format!!***

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MAPS, Brazil - Checkoslovakia, autoboots! +Y
MAPS, Denmark - Granada , hires maps! +Y
MAPS, Guadel - Illinois, hires maps! +Y
MAPS, India - Luxembourg, hire maps! +Y
MAPS, Macau - Missisipi, autoboots! +Y
MAPS, Montana - New York, hires maps! +Y
MAPS, Neutral Zone - Iraq - S Dakota! +Y
MAPS, Senegal - Tuuaw, autoboots! +Y
MAPS, Texas - Zimbabwe, autoboots! +Y
...TILES, good pictures, autoboots! +Y
...ACTORS, famous faces, autoboots! +Y(2)
...CRAFT, 1-26, assorted, autoboots! +Y
...CRAFT, 27-32 & Cars! autoboots! +Y
...1-12 Super pictures, autoboots! +Y
...13-29 More avian pictures! +Y
...30-41 Lots more birds,autoboots! +Y
...Many more bird pics, autoboots! +Y
...And some more fab pictures! +Y
...116-130 Some good pictures! +Y
...131-138 More bird pictures! +Y
...More superb pictures here! +Y
...CATS, 1-16 Super cat pics,autoboots! +Y
...DOGS, 1-126 Super dog pics,8 disks! +Y
...EXPLORERS 1-13 famous explorers,autoboots+y
...FISH 1-82 Super pics pictures,(4 disks)+y
...FLOWERS 1-13 Flower pictures,autoboots!+y
...FLOWERS 14-25 More flower pics,autoboots!+y
...FLOWERS 26-37 More flower pics,autoboots!+y
...FLOWERS 38-50 More flower pics,workbench+y
...FLOWERS 51-62 More flower pics,autoboots!+y
...FLOWERS 63-74 More flower pics,autoboots!+y
...FLOWERS 75-87 More flower pics,autoboots!+y
...FLOWERS 88-100 More flower pics,autoboots+y
...FLOWERS 101-113 More flower pics,autoboots+y

CL050 FLOWERS 114-127 More flower pics,autoboots+y
CL051 FLOWERS 128-138, FRUIT 1-4 pics autoboots+y
CL052 FRUIT 5-18, Good pictures! autoboots! +Y
CL054 FRUIT, More fruit & leaves etc!,autoboots+Y
CL055 FRONTIER 1-13 Pioneer pictures,autoboots
CL056 HORSES 1-16 Great horse pics,autoboots! +Y
CL057 HORSES 17-22, Insects 1-9, autoboots! +Y
CL058 INSECTS 11-23 Small creatures! +Y
CL059 INSECTS 24-41 More pics! autoboots! +Y
CL060 INSECTS 42-59 More insects! autoboots! +Y
CL061 INSECTS 60-63, Inventors 1-11 autoboots! +Y
CL062 INVENTORS 12-24 More inventors autoboots! +Y
CL063 INVENTORS 25-30, MAMMALS 1-10! autoboots! +Y
CL064 MAMMALS 11-26 More animals pictures! +Y
CL065 MAMMALS 27-46 and more animals! +Y
CL066 MAMMALS 45-65 more mammals,autoboots! +Y
CL067 MAMMALS 66-82 and some more! autoboots! +Y
CL068 MAMMALS 83-102 and many more autoboots+Y
CL069 MAMMALS 103-119 many more! autoboots! +Y
CL070 MAMMALS 121-141 superb pictures! autoboots +Y
CL071 MAMMALS 142-158, & INSTRUMENTS 1-4! +Y
CL072 INSTRUMENTS 4-25 Musical! autoboots +Y
CL073 INSTRUMENTS 26-36, MILITARY 1-6 autoboots +Y
CL074 MILITARY 7-17,& MUSICIANS 1-4! +Y
CL075 MUSICIANS 9 -21 Classical! autoboots! +Y
CL076 PREHISTORIC 2-19 Dinosaurs! autoboots! +Y
CL077 PREHISTORIC 20-25, PEOPLE 1-8 autoboots! +Y
CL078/80 PEOPLE 9-50 Lots of people! (3 disks)+Y
CL081 PEOPLE & Presidents, good pictures! +Y
CL082/4 PRESIDENTS 1-40 USA presidents,3 disks +Y
CL085 REPTILES 1-19 Good pictures autoboots! +Y
CL086 REPTILES 19-38 More reptiles! autoboots! +Y
CL087 REPTILES 39-50, Ships 1-9,autoboots! +Y
CL088 SHIPS 10-33 Marine vessels! +Y
CL089 SPORTSMEN. Various sportsmen,autoboots! +Y
CL091 TREES. Lots of tree pictures! autoboots! +Y
CL092 TREES. Lots more tree pics! autoboots! +Y
CL093 TREES. And some more trees! +Y
CL094 TREES 57-70 trees lots of trees,autoboots!+y
CL095 TREES 71-84 more tree pictures, autoboots!+y
CL096 TREES 85-100 even more trees,workbench!+y
CL097/100 VEGETABLES 1-48 good pics 4 disks,workbench+y



*CLASSIC CLIPART (Black & White)*
(Okay on A1200 / A4000.)
*The clipart in this collection is very high quality, huge bitmaps, many greater than an Amiga hires screen, for use in Dpaint or DTP packages, each disk autoboots as a slideshow allowing you to view the entire bitmap by moving the mouse! (Prices per disk!)*

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ART14 ANIMALS Fantastic quality pictures!+
ART15 CATS Only 12 pics but super quality!+
ART16 SILHOUETTES 18 super silhouettes!+
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ART23 DECORATIVE MONTHS 1 for every month+
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ART31 BORDERS 2 disks, must load into DTP!+
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ART33 HORNBACK Nice scenic clipart!+
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ART35 VANITY FARE 2 disks fashion clipart!+
ART36 HALLOWEEN CLIPART Wierd clipart!+
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ART39 FLORAL 14 very detailed pictures!+
ART40 MYTHS Mythical images + zodiac!+
ART41 DOG WOODCUTS Super 300dpi pics!+
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ART43 AFRICAN WOODCUTS African animals!+
ART44 AMERICAN WOODCUTS More animals!+
ART45 ARTIC WOODCUTS Northern animals!+
ART46 FARM WOODCUTS Farm animals!+
ART47 MIXED ANIMAL WOODCUTS Nice pics!+
ART48 BIRDS WOODCUTS 18th century bird pics+
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ART62 SOFTSCENE 3 More nice scenery pictures! +Y
ART63 RESTAURANT 3 disks of Restaurant pictures(3)+Y
ART64 MORE HOLIDAYS Festive holiday pictures! +Y
ART65 ANIM & BIRD 44 nice pictures! +Y
ART66 MOSSBURN ANIMALS 32 nice animal pictures! +Y
ART67 BURCHFIELD KIDS Some nice kids clipart! +Y
ART68 BEAST & MYTH 3 disks of Monsters,demons etc!(3)+Y
ART69 TRANSPORT 3 disks of Cars,Airplanes Ships etc!(3)+Y
ART70 TRUCKS & TRAINS Full of Wagons trains etc! +Y
ART71 ASTROLOGY 2 disks of astrological signs! +Y
ART72 AIRCRAFT 3 disks full of aircraft pictures!(3) +Y
ART73 BIRDS Songbirds, Birds of Prey & more! +Y
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BG005 EMERALD MINES 05
BG008 EMERALD MINES 08
BG009 EMERALD MINES 09
BG010 EMERALD MINES 10
BG011 EMERALD MINES 11
BG012 EMERALD MINES 12
BG013 EMERALD MINES 13
BG014 EMERALD MINES 14
BG015 EMERALD MINES 15
BG016 NO ONE MINES 01
BG018 NO ONE MINES 03
BG020 NO ONE MINES 05
BG021 NO ONE MINES 06
BG022 NO ONE MINES 07
BG023 NO ONE MINES 08
BG024 NO ONE MINES 09
BG025 NO ONE MINES 10
BG026 NO ONE MINES 11
BG027 NO ONE MINES 12
BG028 NO ONE MINES 13
BG029 NO ONE MINES 14
BG030 NO ONE MINES 15
BG031 EASY RUPPLE MINE
BG032 RUPPLE MINE 1
BG034 RUPPLE MINE 3
BG035 RUPPLE MINE 4
BG036 RUPPLE MINE 5
BG039 DOWN UNDER MINES 3
BG040 DOWN UNDER MINES 4
BG041 DOWN UNDER MINES 5
BG043 DOWN UNDER MINES 7
BG046 DOWN UNDER MINES 10
BG047 DOWN UNDER MINES 11
BG048 DOWN UNDER MINES 12
BG049 DOWN UNDER MINES 13
BG050 DOWN UNDER MINES 14
BG051 RECYCLED MINES 01
BG052 RECYCLED MINES 02
BG055 RECYCLED MINES 05
BG056 RECYCLED MINES 06
BG057 EAT MINES 01
BG058 EAT MINES 02
BG060 MARATHON MINES 02
BG061 MARATHON MINES 03
BG062 OZ MINE 01
BG063 OZ MINE 02
BG064 VENOM MINE 01
BG065 VENOM MINE 02
BG066 DE BOND MINE 01
BG067 DE BOND MINE 02
BG068 DE BOND MINE 03
BG071 DE BOND MINE 06
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BG073 EMERALD EATER
BG074 EMERALD HEAD
BG075 COLD CAVES
BG076 INTO THE COLD CAVES
BG077 PRO ICE MINE 01
BG078 PRO ICE MINE 02
BG079 ACE MINE 01
BG080 INTO THE HISTORY HOLE
BG081 INTO THE CRUSTY MINE
BG082 LADYBIRD MINE
BG083 BABY GHOST MINE 01
BG084 BOULDERDASH 04
BG085 BOULDERDASH CONSTRUCTION
BG086 BOULDERDASH COLLECTION
BG087 PRO BOULDERDASH 01
BG088 OFFICIAL BOULDERDASH
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BG090 POOH MINE
BG091 EXEPTION 01
BG092 ADVENTURES OF MR B
BG093 BOBBY DASH
BG094 JUNIOR MINE 01
BG095 NORLICH MINE 01
BG096 FREAK MINES 01
BG097 DIAMOND MINES 01
BG098 GROTTO MINES 01
BG099 BLOMINE 02
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BG102 EMERALD CRUNCHER 02
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# PD SCENE

**Stunning real time videos, addictive arcade-quality games and superb cartoon slideshows are all up for grabs for next to nothing. Tony Horgan goes public.**

## 242

**demo**

Whether you like pretty pictures and technical trickery in your demos or not makes little difference because *242* is bound to impress you anyway as it is packed with 170Mbs of digitised animation.

The demo is very strange to say the least. At first, it looks like a fairly standard techno audio-visual thing, but it soon turns out to be something a bit different. Between the slogans and strobes it becomes apparent that you're being taken on a camcorded walk to some mystery destination. You are taken down alleyways and through crowded streets. You'll find out what it's all about eventually – but I'm not going to tell you here.

The music is a bit weedy, but it is better than the average soundtrack. The graphics, however, are the best part of this demo – they are uncannily trendy for an Amiga demo.

**Available from: Visage Computers, 18 Station Road, Ilkeston, Derbyshire DE7 5LD. Tel: 0602 444501. Disk no. D200. Price: £2 (including P+P). Requires 0.5 Mb Fast RAM.**

**90%**




## EXTENSIONS

**demo**



Yet more wonderful visuals come your way courtesy of Pygmy Designs. It's best to ignore the hardcore-with-wet-bits soundtrack, and get stuck into the graphics. Things get going properly with a blindingly fast session of 3D landscape flights, taking you over hills and lakes which are made up from lot of little dots. Then, there's the box-in-a-box effect, which has concentric cubes twisting and gyrating within one another.

A series of metamorphing logos are up next, and then it's time for a brilliant Manhattan skyline 3D zoom-trip effect. After some standard vectors, there's another clever rendering of a night time cityscape; this time seen from a helicopter view. If you want a dose of good cutting edge effects, get your copy of *Extensions* ASAP.

**Available from: Visage Computers, 18 Station Road, Ilkeston, Derbyshire DE7 5LD. Tel: 0602 444501. Disk no. 204. Price: £2 (including P+P).**

**88%**

## ASSASSINS 100

**game compilation**

Another couple of ancient classics get the conversion treatment from Assassins. First up is *Bload Runner*, which is really the old C64 fave *Lode Runner*.

If you never played the original, this could look decidedly crap, but give it a chance! Admittedly, the sprites are tiny and the levels are merely various designs of bricks and ladders, but the game still has all the appeal it ever had.

It's like a cross between *Space Panic* (the one where you bash the aliens on the head with a spade) and *Donkey Kong*.

The other main game on the disk is *Monaco*, which is very similar to *Monaco GP*, not the Sega game unfortunately, but one that surfaced around 1980.

It's a simple *Spy Hunter*-style vertically scrolling racer that used to be quite a laugh in its day. Dig out your rose-tinted specs and you can probably get some mileage out of it.

Oh, and there's a Patience card game too.

**Available from: Roberta Smith DTP, 190 Falloden Way, Hampstead Garden Suburb, London NW11 6JE. Disk no. G100. Price: £1.40 (including P+P).**

**81%**

# NEURAL ASSAULT

**demo**

For slick graphic effects, this new one from Rage is tops. It gets going with a slippery-smooth 3D zoom into a cinema screen, followed by a spooky zoom into the eyeball of an android, then does some clever things with 3D texture maps combined with vectors.

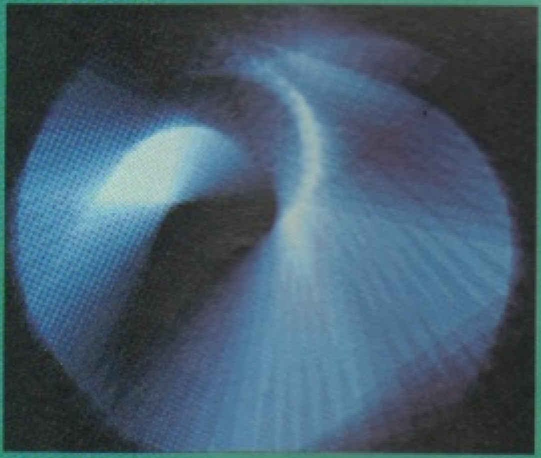
Next on the menu is a wobbly stick of rock kind of effect, then a variety of snippety vector animations, and a sprinkling of various other little effects. There's a promising abstract blurred vector sequence, but it's only on screen for a few seconds, which is a shame as it could become quite hypnotic. It finishes off with a little ray-traced animation loop. Definitely one of the best traditional demos of late.



**Available from: Visage Computers, 18 Station Road, Ilkeston, Derbyshire DE7 5LD. Tel: 0602 444501. Disk no. D205. Price: £2 (including P+P).**

**83%**





# 3 WAYS TO STOP SMOKING

**animation**

If you're really desperate to kick the habit, and you've tried all the usual methods of giving up smoking, you may like to take a look at this for a few ideas. There are three rather extreme suggestions to choose from, two of which end in death, while the other will leave you with only one hand. This one actually aroused a chuckle when I first booted it, which is pretty good considering it was Monday morning.

**Available from: Visage Computers, 18 Station Road, Ilkeston, Derbyshire DE7 5LD. Tel: 0602 444501. Disk no. A120. Price: £2 (including P+P). Requires 1.5Mb RAM.**

**78%**

# AKIRA PICTURE DISK 2

**slideshow**



This one's a single disk slideshow of hand-drawn pics from Akira. The quality varies from average to excellent. Some are true cartoon quality, while a few are a bit amateur-looking. Overall though, there's plenty for Akira fans to get their teeth into.

**Available from: 17 Bit, 1st Floor Offices, 2-8 Market Street, Wakefield, West Yorkshire, WF1 1DH. Tel: 0924 366982. Disk no. 2695. Price: £2 (including P+P).**

**83%**



# RABOULDIX

**game**



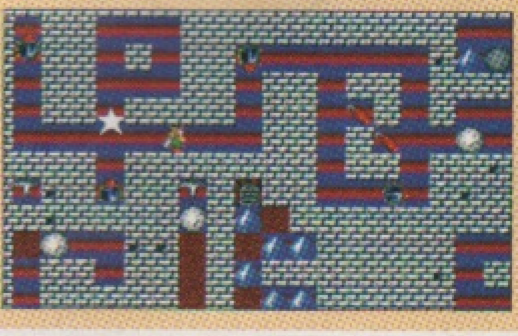
This *Boulderdash* clone is one of the most polished PD games we've seen for a while. For a PD game it's quite well developed, with smooth scrolling, big levels, and a good selection of aliens and traps.

The idea is that you tunnel through the levels, picking up all the diamonds as you go. The gravity introduces a puzzle element, as the boulders cascade into your path, killing you or blocking the passage. In the playability stakes, it lacks the unique feel of the original, but it's a big enough game to keep you occupied for some time.

**Available from: Cynostic PD, 25 Monks Road, Coventry, CV3 2BQ. Tel: 0203 613817. Disk no. G0179. Price: £2 (including P+P).**

**80%**





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## EDUCATIONAL

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**PDE 9 HOORAY FOR HENRIETTA**- DEMO FROM LANDER SOFTWARE (P)
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**PDE 11 HENRIETTA'S BOOK OF SPELLS** ANOTHER LANDER SOFTWARE DEMO

## GAMES

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**PDG 2 STAR TREK** - BY ERIC GUSTAVSON, 3 DISKS, REQ 2 DRIVES, VERY GOOD (P)
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**PDG 35 PAIR IT** - EDUCATIONAL GAME (P)
**PDG 46 FRUIT MACHINE, POOL & MORE**
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**PDG 60 AIR ACE II** -WWII SHOOT-EM-UP(P)
**PDG 61 ELECTRIC TRAIN SET** (P)
**PDG 62 ZX SPECTRUM GAMES #1** INC EMULATOR
**PDG 63 ZX SPECTRUM GAMES** VOL 2 INC EMULATOR (P)
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**PDG 73 TWINTRIS** - THE BEST VERSION (P)
**PDG 75 TANX THE GAME**- ADDICTIVE GAME (P)
**PDG 77 STAR TREK THE NEXT GEN**- BY TERRY MCINTOSH HI-RES GRAPHICS (P)
**PDG 83 JEOPARDY**- RISK TYPE GAME (P)
**PDG 86 CRAZY SUE**
**PDG 87 AMIGA COLUMNS** - WELL REVIEWED (P)
**PDG 88 REVENGE OF THE MUTANT CAMELS** - BY JEFF MINTER
**PDG 89 NEW STAR TREK** - BY JIM BARBER, 2 DISKS
**PDG 91 LEGEND OF LOTHIAN** - ULTIMA TYPE ADVENTURE (P)
**PDG 92 ASHIDO** - ORIENTAL TILE GAME..GOOD! (P)
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## GAMES PACK

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**A MUST FOR ALL GAMERS!**

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**PDG 104 E-TYPE** - THE DEFINITIVE ASTEROIDS VERY FAST (P)
**PDG 105 MANIA** SHOOT SADDAM & THE IRAQUI ARMY (P)
**PDG 106 AIRPORT** - ATC SIMULATOR (P)

## ASSASSINS GAMES DISKS

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**ASI#3** - MEGA BALL, DRIP! (P)
**ASI#4** - JUMPER, GOMOKU, CRACKER, JUMPY , TURBO DUEL, KLONDYKE (P)
**ASI#5** - GO LOOKY, RETALIATOR, RAID (P)
**ASI#6** - DOWNHILL CHALLENGE, PACMAN '87, METAGALACTIC LLAMAS,WELLTRIX
**ASI#7** - DESTINATION MOONBASE, TRIX, NIGHTWORKS, CLOUD RUNNER
**ASI#8**-AIR ACE II, H-BALL, NUMBER FUMBLER, SNAKE PIT
**ASI#10** - PICKOUT , ESCAPE, SYS, PIPELINE (P)
**ASI#11** - DAD, CONNEX, TOWERS OF HANOI, REVERSI, TRIPPIN' (P)
**ASI#12** - CAR, LLAMATRON,POWER PONG, XFI
**ASI#13** - BALL, ASTEROIDS, TWINTRIS, BLOCK-II, SQUAMBLE, AMIGATRATION (P)
**ASI#14** - CHINA CHALLENGE II, AMIGA COLUMNS (P)
**ASI#15** - BATTLE CARS, MAMBA MOVE
**ASI#16** - PACMAN, WASTELANDS, DILEMMA, MISSION-X (P)
**ASI#17** - JETMAN, DEFENDA, TOMCAT, BUGBLASTER (P)
**ASI#18** - OMEGA RACE, SKY FLYER, HENRY IN PANIC, MEGATRON
**ASI#20** - AMOS COIN DROP, MICROBES,HOLLYWOOD TRIVIA, MATCH PATCH (P)
**ASI#21** - ZUES, TETTRIX, TILES, BATTLEMENTS
**ASI#22** - LEMMINGOIDS,DUEL, MOUTH MAN, WIZZY'S QUEST (P)
**ASI#24** - REVENGE OF THE MUTANT CAMELS, NEBULA, CROAK, 3D MAZE, DUX (P)
**ASI#25** - E-TYPE, ASTEROIDS, HEMROIDS, COPPER, MR WOBBLY, MR BRICK (P)
**ASI#26** - SUPER PACMAN '92, SMASH TV, ASHIDO, BALLY III, SYSTEM IV
**ASI#36**- WONDERLAND, SUB ATTACK, MOTHER LODE, TACTIX, DONKEY KONG (P)
**ASI#37** - KLAKTRIS, PACCER, POD, GHOST SHIP (P)
**ASI#38** - ONE ON ONE, SKYFLYER 2, BALDY, TRANSPLANT (P)
**ASI#28** - DOODY, DR MARIO, INVADER II, FLAG CATCHER, MAD BOMBER (P)
**ASI#29** - DOG, ROME, NOVA, BRIDGE BALL, ATTACKS, QUADRIX (P)
**ASI#30** - CHROME, TANK ATTACK, TOTAL FIRE, BOUNCE'N'BLAST (P)
**ASI#31** - ISHID-O-MATIC, CRAZY PIPES, ARAZIMAX, REVOLUTION (P)
**ASI#32** - BLOB, FIRE FIGHTER, SECTOR ONE (P)
**ASI#33** - TOTAL WAR, HYPERBALL (P)
**ASI#34** - TRAIL BLAZER, Q-BIX, RUSH HR (P)
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**ASI#48**- PSYCHO SANTA, POINT TO POINT, WARRIOR, CRYPTO KING
**ASI#49** - CRAZY SUE, DEATHBRINGER IN SPACE CRAZY SUE II, ASSAULT
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**ASI#55** - CLITRIS, PACATAC, ASTEROIDS
**ASI#56** - PICTURE TILES, STORMEAGLE, EXTREME VIOLENCE
**ASI#57** - POO POO, DOMINOES, DIZZY DIAMONDS, SQIRMS
**ASI#58** - SUPER RAID, MAGNATRON, MAIYESSAE
**ASI#59** - TURBO THRUST, GX200, LEEDINGS
**ASI#60** - PIPE MASTER 2, ALIEN HUNTER, CHINESE CHECKERS
**ASI#61** - BATTLESNAKE, RUNNING, CHASER, SCUD BUSTER
**ASI#62** - PIPELINE 2, MAZEMAN, UP'N'DOWN
**ASI#63** - NAUTILUS, FRENZY, DRIVE IIT
**ASI#64** - OBLIVION, BREAKOUT CONSTRUCTION KIT, DRIVE WARS
**ASI#65** - COW WARS, AMASTERMIND, ASOKOBAN
**ASI#66** - PARANOIDS,WORD SEARCH, MIRRORWARS, WORDS PUZZLE, CHESS
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**ASI#68** - DEMOLITION MISSION, BOUNDER, ATOMS
**ASI#69** - BRIDGE, KLONDYKE, POKER, KLONDYKE 2, CELESTIAL CAESAR
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**ASI#71** - NUMBERIX, BATTLESHIP vs TANKS
**ASI#73** - LEXESS, CONCENTRATION, CHALLENGER
**ASI#74** - CRAZY PIPES II, BOMB JACKY, CHUTE
**ASI#75** - DOUBLE SQUARES, COLOURS, DIAMOND THIEF
**ASI#76**- GNU CHESS, CUBUS, GERB GAME
**ASI#78** - LITTLE BOULDER, HEAD GAMES, FRUIT PANIC
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## RED SECTOR INC.

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## DEMOS

**PDD 1 ANARCHY DEMO**
**PDD 7 ELVIRA DEMO**
**PDD 16 ROBOCOP DEMO** (P)
**PDD 31 ANRCHY "OOH! IT'S OBSCENE 3"**
**PDD 72 RED SECTOR DEMO #4**
**PDD 76 SCOOPEX MEGA DEMO** (P)
**PDD 97 PREDATORS MEGADEMO** (P) 2 DISKS
**PDD 98 SAFE SEX DEMO** (P)
**PDD 107 BUDBRAIN #1** - 2 DISKS (P)
**PDD 130 CHUBBY BROWN DEMO** (P)
**PDD 153 BILLY CONNOLLY DEMO** - 2 DISK (P)
**PDD 160 HATRICK -"RAVE ON"**
**PDD 177 BUDBRAIN 2**
**PDD 287 PHENOMENA ENIGMA** (P)
**PDD 288 PHENOMENA TERMINATOR**
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**PDD 316 DIGITAL INNOVATION** - 26 MINS LONG !.. BRILLIANT (P)
**PDD 317 SYSTEM VIOLATION** - BY ANARCHY...WORTH A LOOK (P)
**PDD 318 JESUS ON E's** - SUPERB!!! (P) 2 DISKS
**PDD 319 ANARCHY "IN THE KITCHEN..."** (P)

## ANIMATIONS

**PDA 12 STAR TREK - AGATRON #2** (P)
**PDA 13 STAR TREK - AGATRON #17**
**PDA 5 MOONWALKER**
**PDA 54 NASA GRAPHICS**
**PDA 80 WALKER II** - 2 DISKS, 2MB REQD (P)
**PDA 82 AGATRON "ENTERPRISE LEAVING DOCK"** (P)
**PDA 123 STEALTHY MANOEUVERS** -BY ERIC SCHWARTZ (P)
**PDA308 ANTI LEMMIN' DEMO** - 2 DISKS 2MB DEFINITIVE SCHWARTZ (P)
**PDA 134 THE DATING GAME** - 2 DISKS 3MB ANOTHER GOOD ONE (P)
**PDA135 BUZZED** - RAYTRACED, 3 DISKS, 3MB EXCELLENT GRAPHICS (P)
**PDA 136 AT THE MOVIES** II - BRILLIANT! 4 DISKS, WORKS WITH 1MB BUT MORE MEMORY THE BETTER (P)
**PDA 138 AT THE BEACH**-SCHWARTZ 3MB, 2 DSK STARRING FLIP THE FROG (P)
**PDA139 UNSPORTING** - EXC. AEROTOON BY ERIC SCHWARTZ 2MB (P)
**PDA 142 GULF CONFLICT** - SUPERB! 2MB(P)
**PDA 143 SWEET REVENGE** - WILE. E COYOTE GETS THE DROP ON ROAD RUNNER....... 1.5MB REQD (P)
**PDA 144 HOW TO RUN / COYOTE 2** - SCHWARTZ.... FUNNY (P)
**PDA 145 AMY WALKS/ AMY JOGS/ BIG SNEEZE** (P).... MORE SCHWARTZ
**PDA 147 CHARLEY THE CAT** -2MB, 2 DSK ,V.GOOD ANIMATION (P)
**PDA 148 CHARLEY THE CAT II**- 2MB, 2 DISKS(P)
**PDA 149 LINUS** - BRILLIANT ANIM (P)

## CLIP ART

NEW...NEW...NEW...NEW...NEW...NEW...NEW...NEW
**PDU 453 WEDDINGS** - 2 DISKS (P)
**PDU 454 HOUSES** - 2 DISKS (P)
**PDU 455 FANCY BORDERS** 2 DISKS (P)
**PDU 456 COLOURING BOOK** - IDEAL FOR KIDS! (P)
**PDU 457 MEN AT WORK** - 2 DISKS (P)
**PDU 458 WOMEN AT WORK** - 2 DISKS (P)
**PDU 459 SPORT** - 2 DISKS (P)
**PDU 460 ANIMALS** (P)
**PDU 461 CATS** (P)
**PDU 463 WORLD WAR II AIRCRAFT** (P)
**PDU 464 MYTHOLOGY** (P)
**PDU 465 CHURCH & PASTORAL** - 3 DISKS(P)
**PDU 466 AFRICAN WOODCUTS** (P)
**PDU 467 WOODCUT CATS** (P)
**PDU 468 WOODCUT DOGS** (P)
**PDU 470 ARCTIC WOODCUTS** (P)
**PDU 471 FARM WOODCUTS** (P)
**PDU 472 MIXED ANIMAL WOODCUTS** (P)
**PDU 473 BIRD WOODCUTS** (P)
**PDU 475 BANNER ART** (P)
**PDU 476 VEGETARIAN CLIPS** (P)
**PDU 478 BUSINESS** (P)
**PDU 479 SAILORS, FISHERMEN, SEA LIFE** (P)

**ALL OF THE ABOVE ARE HUGE, HIGH QUALITY IMAGES. THE DISKS ARE AUTO BOOTING WITH SLIDESHOW VIEWERS. MULTIPLE SETS ARE AVAILABLE AS SINGLE DISKS.**

## LATEST DISKS

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**PDU 488 A500 PLUS EMULATOR** LOADS KICKSTART 2.0 INTO MEMORY ...BRILLIANT !
**PDU 489 PROTRACKER v3.0** - GOOD MUSIC TRACKER (P)
**PDU 490 GRINDER** - GRAPHICS CONVERSIONS FROM PC/MAC TO AMIGA (P)
**PDU 491 QMJ v5.31** - THE QUARTERNION MANDELBROT JULIA (P)
**PDU 492 WHOM III** -DATABASE ON STAR TREK AND TNG....VERY GOOD ! (P)
**PDU 493 PERM CHECK PLUS** -GOOD (P)
**PDU 494 DATABASES** - BBASE 5.5, DATAFILER, ADDRESSER & VIDEOMAXE (P)

## MORE NEW CLIPART

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**PDU 496 GOLF HUMOUR** (2 DISKS) (P)
**PDU 497 SPACE** (P)
**PDU 498 US NAVY** (P)
**PDU 499 FAMILY SCENES** (P)
**PDU 501 SPORTING / BASEBALL** (P)
**PDU 502 SOFT SCENE - LANDSCAPES** (P)

**PDD 324 ANARCHY 3D DEMO II** (P)
**PDD 325 JOYRIDE** BY PHENOMENA (P)
**PDD 326 STATE OF THE ART..... SPACEBALLS** (P)
**PDU 500 TRIONI CAD v1.0** -BRILLIANT DESIGN PROGRAM, WELL REVIEWED (P)
**PDG 157 CRAZY SUE II** (P)
**PDU 503 TV & VIDEO GRAPHICS** - 8 DISKS, A SUPERB SET FOR THE VIDEO TITLING ENTHUSIAST (P)
**PDU 506 HARLEQUIN VIDEO FONTS #1** (P)
**PDU 507 HARLEQUIN VIDEO FONTS #2** (P)
**PDU 508 HARLEQUIN VIDEO CLIPART** (P)

## NEW FOR *AMIGA* A1200

**PDA 150 WIERD SCIENCE** AGA S/SHOW #1
**PDA 151 WIERD SCIENCE** AGA S/SHOW #2
**PDA 152 WIERD SCIENCE** AGA S/SHOW #3
**PDA 157 WIERD SCIENCE** AGA S/SHOW #4
**PDA 153 SUPER HAM SLIDESHOW #2** - AGA SLIDESHOW....VERY GOOD
**PDA 154 SUPER HAM S/SHOW #4** - AGA
**PDA 155 SUPER HAM S/SHOW #5** - AGA
**PDA 156 SUPER HAM S/SHOW #6** - AGA
**PDD 327 HOIS AGA DEMO** - THE VERY FIRST AGA ONLY DEMO..GREAT FX & MUSIC

**PDU 504 GOLF SCORE v1.84** (P)
**PDU 505 PICTURE CONVERTOR v1a** - ANOTHER PC TO AMIGA IFF FORMAT CONVERTOR (P)
**PDU 509 SLIDESHOW GENERATOR v3.2** (P)
**PDU 510 ICON EDIT v 1.0** (P)
**PDU 511 ASSASSINS PRINTER UTILS** (P) - LABEL PRINT, LABEL BASE, HYPERCAT, SUPER RET LAB
**PDU 512 ADDRESS PRINT v3.0** - ADDRESS LABEL UTILITY (P)
**PDU 513 ASSASSINS AUDIO MAGIC vol 3.0** - LOADS OF PLAYERS, TRACKERS & MUSIC RIPPERS WITH FULL DOCS (P)
**PDG 158 TEXAS CHAINSAW MASSACRE** - A BRILLIANT GAME (POSSIBLY CREATED WITH THE CHOP-EM-UP-CONSTRUCTION KIT) NOT FOR KIDS(P)
**PDG 159 CLASH OF THE EMPIRES** - NAPOLEONIC WAR SIMULATOR (P)
**PDG 160, MASHIE NIBLICK** - SIMPLE GOLF GAME FOR THE AMIGA (P)
**PDU 514 V-MORPH v2.21** - PD MORPHING PROGRAM VERY LATEST VERSION (P)
**PDU 516 TELE SCROLL 1** VIDEO TITLING SOFTWARE ...V.GOOD! (P)
**PDU 517 TELE TITLE 2** TITLING SOFTWARE (P)
**PDU 518 TELE TITLE 2 LO-RES** (P)
**PDU 519 MAJOR LEAGUE** KEEPS TRACK OF YOUR TEAM'S SCORES (P)
**PDU 520 PC-TASK v2.01** LATEST VERSION OF THIS PC EMULATOR NOW SUPPORTS VGA GRAPHICS IF YOU HAVE THE AGA CHIPSET(P)
**PDU 521 AMOS PRO UPDATER v1.12** (P)
**PDU 522 WINDOW BLENDER** (1200 ONLY)
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**PD & LICENCEWARE PROGRAMMERS**

AS ONE OF THE LEADING DISTRIBUTORS OF PUBLIC DOMAIN, SHAREWARE & LICENCEWARE IN THE U.K. WE WOULD BE PLEASED TO REVIEW ANY PROGRAMS THAT YOU HAVE WRITTEN OR COMPILED. JUST SEND THEM TO US LABELLED **"SUBMISSIONS"** TOGETHER WITH YOUR NAME AND ADDRESS. ALL DISKS WILL BE RETURNED

**LATEST DISKS CONTINUED........**
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**PDD 328 MINDWARP DEMO** ANOTHER BLISTERING DEMO FROM TEAM HOI...ONLY FOR AGA MACHINES
**PDD 329 1200 DEMO COLLECTION** GOOD SELECTION WITH A NIFTY LITTLE PROGRAM THAT FAKES FAST RAM ON THE 1200
**PDD 330 MADE IN CROATIA DEMO** RECENT PARTY WINNER...UNSCOFTABLE (P)

**GRAPEVINE ISSUE 16**

THIS IS THE LATEST COPY OF THE BEST DISK MAGAZINE...BAR NONE. THERE ARE OVER THREE HUNDRED DIVERSE ARTICLES ON THREE DISKS. HIGHLY RECOMMENDED READ (SOME ADULT HUMOUR)

**ALL 3 DISKS FOR ONLY**

**£3.75**

WE ALSO HAVE ISSUES 1 TO 15...PLEASE CALL FOR DETAILS

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**PDA 153 AGA "BABES" SLIDESHOW** BY WIERD SCIENCE...TASTEFUL PIN UPS -2 DISKS (1200 ONLY)
**PDG 162 AGA TETRIS** (1200 ONLY GAME)
**PDG 163 SOLITAIRE SAMPLER** BY SERIOUS SOFTWARE ...GOOD (ALL AMIGAS)
**PDG 164 ASOKOBAN & SOLAR STAR WARS** (OK ON ALL MACHINES)
**PDG 165 NUMERIX** EXC. GAME (P)
**PDG 166 VEKTOR LIGHT CYCLES** A VERY ADDICTIVE GAME (P)
**PDG 167 QUIZ MASTER 2** TEST YOUR GENERAL KNOWLEDGE (ALL MACHINES)
**PDG 168 GUNSLINGER** GOOD ADDICTIVE 2 PLAYER GAME (P)
**PDU 524 ACCOUNT MASTER v2.13** VERY GOOD HOME FINANCE PROGRAM....WELL REVIEWED - WORKS ON ALL AMIGAS
**PDU 525 SUPER VIEWER v 2.4** SLIDESHOW UTILITY.....NEW (P) (1200)
**PDU 526 KING FISHER v1.2** DATA BASE ON THE CONTENTS OF THE FRED FISH COLLECTION OF DISKS (P) (1200)
**PDU 527 MUSIC ENGINE v 1.32** LATEST VERSION OF THIS MULTI FORMAT MUSIC PLAYER....WILL PLAY MOST FORMATS - INCL. 8 CHANNEL OCTAMED (P) (1200)
**PDU 528 ASI BOOT UTILS** (P) LOTS 'N LOTS OF USEFUL BOOT UTILS
**PDU 529 ASI CRUNCH 'N' COPY 2** - A DISK FULL OF COMPRESSION UTILS & DISK COPY PROGRAMS

## ASSASSINS PACK 2

ANOTHER 35 0f THE LATER ASI GAMES. 120+ GAMES ..... THEY ARE AGAIN VERY WELL PRESENTED.... EASY TO USE AND MAKE IDEAL PRESENTS FOR KIDS & ADULTS ALIKE!

**ALL 35 DISKS FOR**

**£34.95**

**PDU 530 KICK 1.3** WORKS ON WB2.0 AND WB 3.0 MACHINES. LOADS A 1.3 ROM INTO MEMORY, MAKING LATER MACHINES MORE COMPATIBLE WITH OLDER SOFTWARE.
**PDU 531 AUDIO MAGIC 4** ANOTHER COLLECTION OF MUSIC TRACKERS, RIPPERS AND OTHER UTILS. WORKS ON ALL AMIGAS

**CATALOGUE DISK**

OUR CATALOGUE DISK CONTAINS DETAILS OF ALL OF OUR EXTENSIVE COLLECTION. PLEASE SEND 3 FIRST CLASS STAMPS FOR YOUR COPY. ALTERNATIVELY, YOU CAN HAVE ONE FREE WITH YOUR ORDER ON REQUEST

## LICENCEWARE

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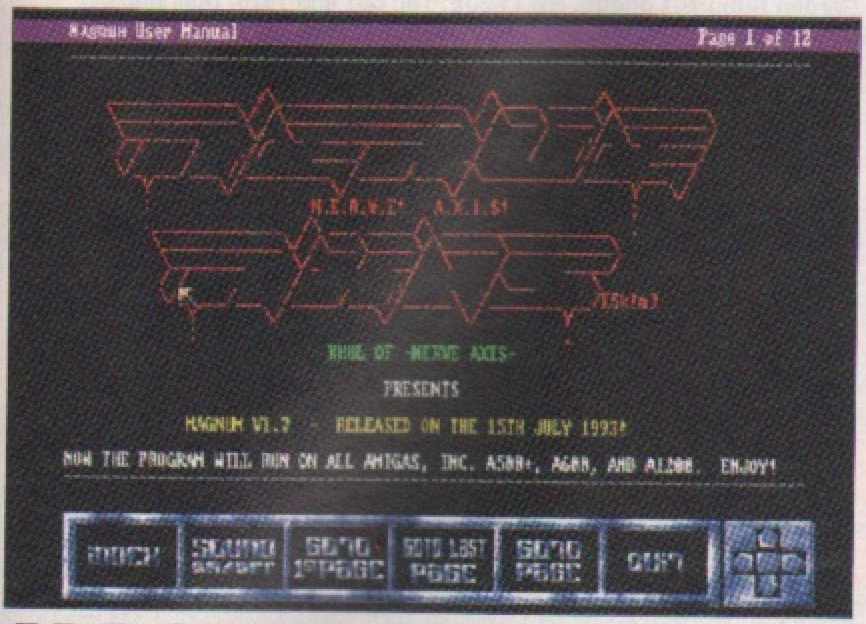
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# PD UTILITIES

**With more utilities than Batman's belt, here comes Tony Horgan with another round-up of the more serious side of the public domain.**




## MAGNUM V1.7

### diskmag creator

Diskmags are everywhere at the moment. Some have trendy demos and shiny metallic interfaces, while others are little more than a collection of ReadMe files thrown onto a disk. If you want to get in on the act, but don't have the programming skills to create your own interface, *Magnum* can help you out.

The *Magnum* program isn't really a diskmag creator, it's more of an editable diskmag. To turn this into your own mag, all you need to do is replace the text files with those of your own, include your own graphics (so long as they're NTSC size rather than PAL), and MED, OctaMED or Tracker files can be played in the background. The central controller program is along the lines of the interfaces used by Grapevine and Raw. It's not as sophisticated as some, but it's far easier to use than others. An excellent option for budding diskmag editors.

**Available from: Cynostic PD, 25 Monks Road, Coventry, CV3 2BQ. Tel 0203 613817. Disk no. U0207. Price: £2.00 including P+P. Memory: 1Mb. Compatibility: All Amigas.**

**93%**

## DISKMASTER III

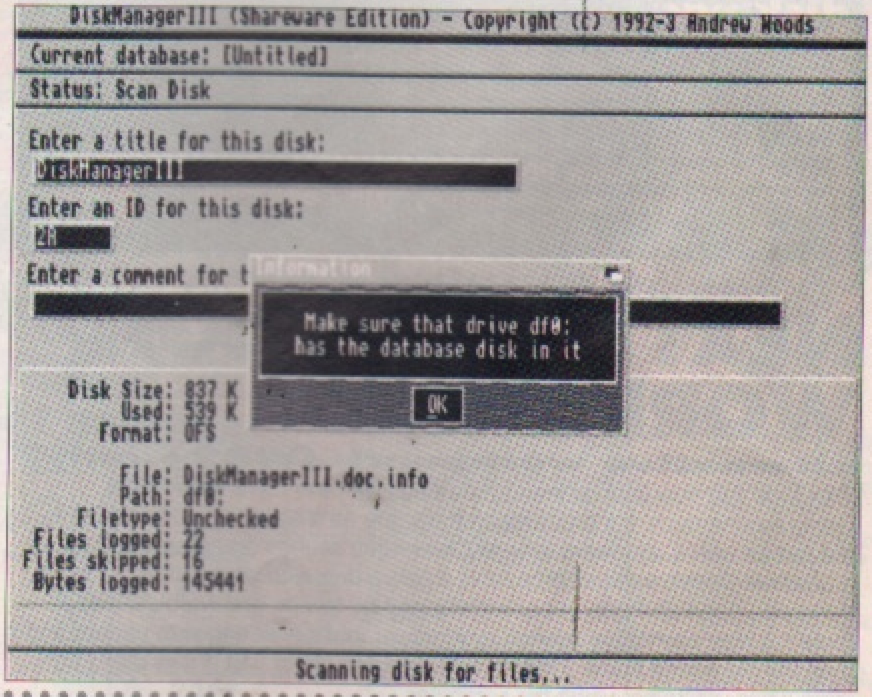
### disk cataloguer

Putting order into a collection of floppy disks is an uphill struggle, but *Diskmaster* eases the burden.

Its primary use is to keep track of which files are on which disks. This means you'll have to feed it every one of your disks, and let it read the directories so it can add them to its list. You'll also need to repeat the process every so often with any new disks you've created or altered. Another of its useful features is that if you've run out of space on your current disk, it can tell you which of your other disks has sufficient free space to save the current file. To get the most out of *Disk Manager*, you've got to be organised enough to keep the database updated. If you can handle that, it should prove a useful addition to your collection.

**Available from: Cynostic PD, 25 Monks Road, Coventry, CV3 2BQ. Tel: 0203 613817. Disk no. U0214. Price: £2.00 including P+P. Memory 512K. Compatibility: All Amigas.**

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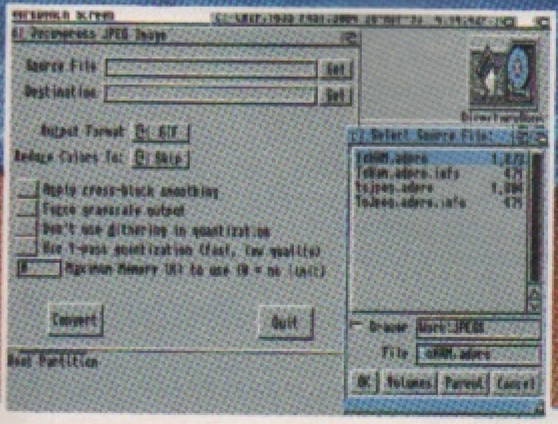





## DPEG

### picture convertor (WB2+ only)

DJPEG is a simple picture file convertor. It can load JPEGs and save them out as either TARGA, PPM or GIF files, but strangely there's no IFF support. Because of this, it'll be of most use to anyone who needs to convert files for systems other than the Amiga. Should this be expanded to load and save the whole range of current picture file formats, including IFF, DJPEG could become a very popular utility, as it's a breeze to use with its simple file requestor and icons. It's a shame it's only half way there.



**Available from: 17 Bit, 1st Floor Offices, 2/8 Market Street, Wakefield, West Yorks, WF1 1DH. Tel: 0924 366982. Disk no. 2700. Price: £2.00 including P+P. Memory: 1Mb. Compatibility: Workbench 2.04+.**

**60%**

»




# THE FINAL FRONTIER ISSUE 5

### diskmag

Okay, so it's not a utility, but I thought I'd mention it as we're on the subject of *Star Trek*. It's a four-disk mag that's packed with all sorts of articles and pictures about the world's favourite sci-fi series. Bjorn Lynne supplies the sounds, and a cast of plenty supply the rest, in one of the slickest disk mags around. A must for *Star Trek* fanatics.

**Available from: Cynostic PD, 25 Monks Road, Coventry, CV3 2BQ. Price:£7 including P+P. Memory: 1Mb. Compatibility: All Amigas.**

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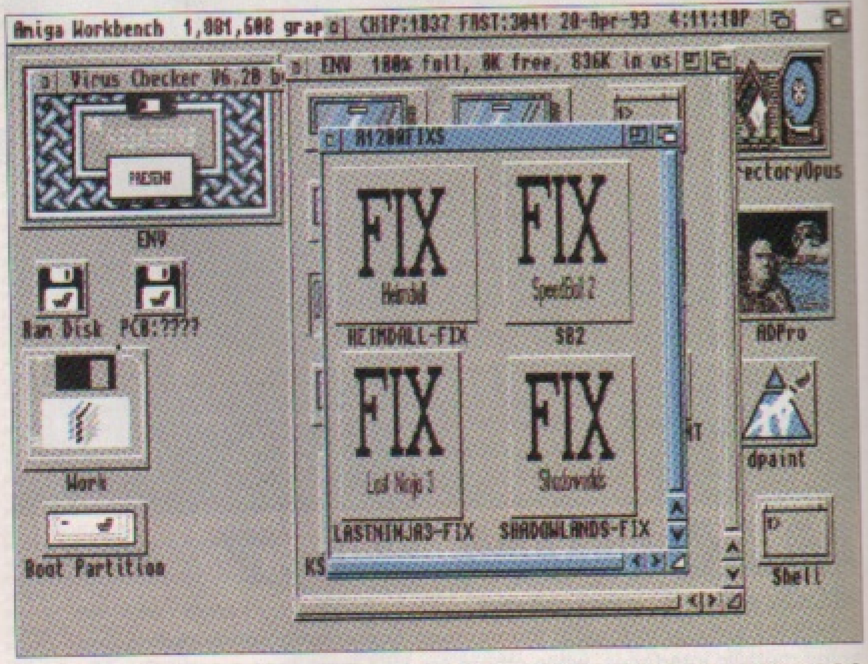
# ASSASSINS A1200 FIX

### compatibility utilities

Trying to get old software to run on a 1200 can be a big problem, but now the renowned PD game compilers Assassins have put together a disk of all the best PD A1200-compatible utilities. This is what you get: A1200 *RUN, Kill AGA, Degrader, Run It, Fake Memory, Fake Fast, Full view, Kickstart 1.3 patcher*, and specific A1200 fixes for *Heimdall, Speedball 2, Last Ninja 3* and *Shadowlands*. Even with all that lot you won't be guaranteed compatibility with older software, but you'll stand a much better chance of getting things running.

**Available from: Roberta Smith DTP, 190 Falloden Way, Hampstead Garden Suburb, London, NW11 6JE. Tel: 081 455 1626. Disk no. UT600. Price: £1.40 including P+P. Memory: 2Mb. Compatibility: A1200/A4000.**

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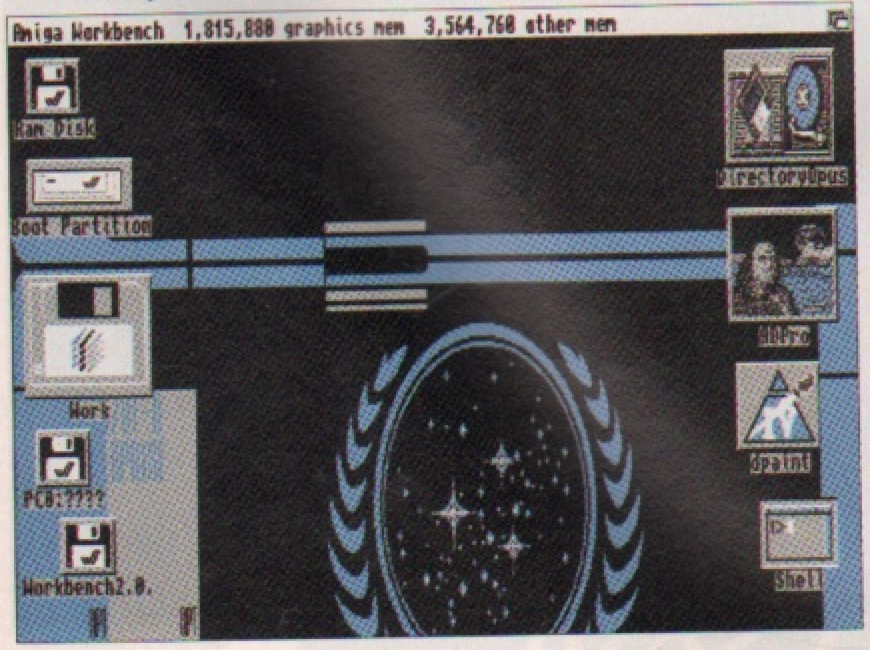

# NEXT GENERATION WORKBENCH

### alternative workbench (WB2+ only)

Trek fans can now jazz up their Workbench with this customised Next Generation version. It's pretty much the same as a normal Workbench disk, but comes with a sprinkling of Next Generation sounds and graphics. There's a Starfleet Command backdrop, and an extra disk with sound samples from the series. Disk changes are acknowledged by bleeps and warbles, and there's a nice alternative speech synthesiser that's a bit easier to understand than the old Amiga voice. There's also a screen saver that draws pretty patterns while you're not using the computer.

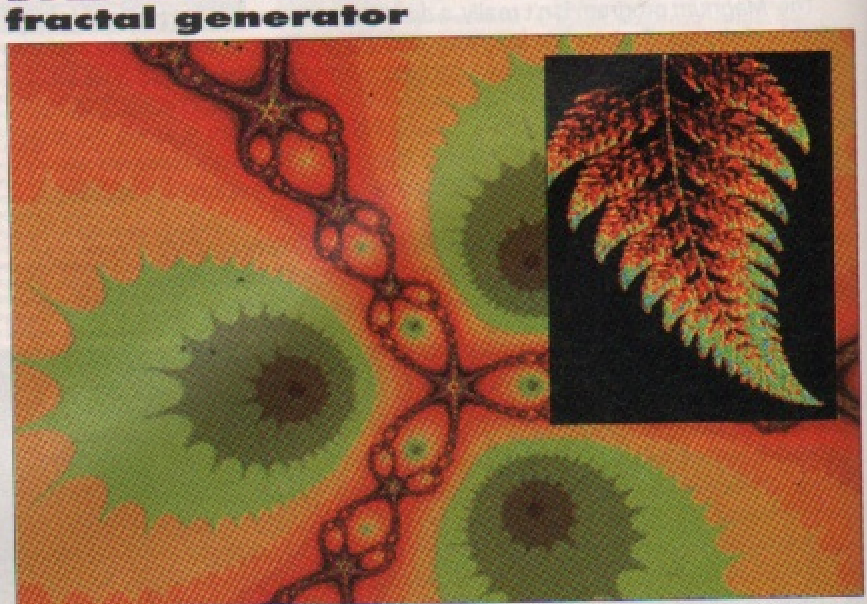
**Available from: Gary Burdekin, 18 Station Road, Ilkeston, Derbyshire DE7 5LD. Tel: 071 281 2748. Price: £2.00 including P+P. Memory: 1Mb. Compatibility: Workbench 2 and above.**

**81%**




# MANDELPLOT 2.4

### fractal generator



Wait a minute! Don't skip this one because it's just another fractal generator, because it's not! It's the fastest, most user-friendly and versatile example the public domain has to offer. It does all the usual fractal patterns you've seen countless times before, but what makes it special are the alternative patterns it comes up with, and the sheer amount of features on the menu. This unregistered PD version gives you a choice of 10 preset fractal algorithms. A further 23 fractals are ghosted, available when you register.

The PD version also lets you input your own formula. Zoomed animations are easily created, and you can choose from a massive range of 2D or 3D styles. Going by the demo pics that come with the disk, you can even generate plant-like images, presumably one of the features you'd get with the registered version.

Anyone remotely into graphics or freaky video should get hold of it pretty damn pronto.

**Available from: Cynostic PD, 25 Monks Road, Coventry, CV3 2BQ. Tel: 0203 613817. Price: £2.00 including P+P. Memory: 1Mb. Compatibility: All Amigas.**

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Now that you've had a chance to tinker with *Advantage* you've probably realised that it's a really huge program that'll take time to master. *Advantage* offers you integrated database management and graphic facilities, a library of preconfigured spreadsheet templates and optimised output to any preferences device. Why tinker with these powerful routines when you can master them with ease by getting hold of the manual? Learn how to run multiple spreadsheets and multiple views of individual ones, how to data link, how to construct time-saving macros, and how to optimise the other user-definable functions. This manual can be yours for just £19.95.

In addition to this excellent offer, Gold Disk are also offering CU AMIGA's readers the chance to upgrade to *Professional Calc*, the successor to *Advantage*. This improved version sports a new user interface with full *Arexx* macro support, enabling not only internal programs but also more effective graph output. You can assign programs to cells which can then be run with a simple double-click. The graphics functions are some of the best available with the capability of producing presentation-quality artwork. A truly professional package.

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- The 1Mb A500+ board costs a minuscule £22.99
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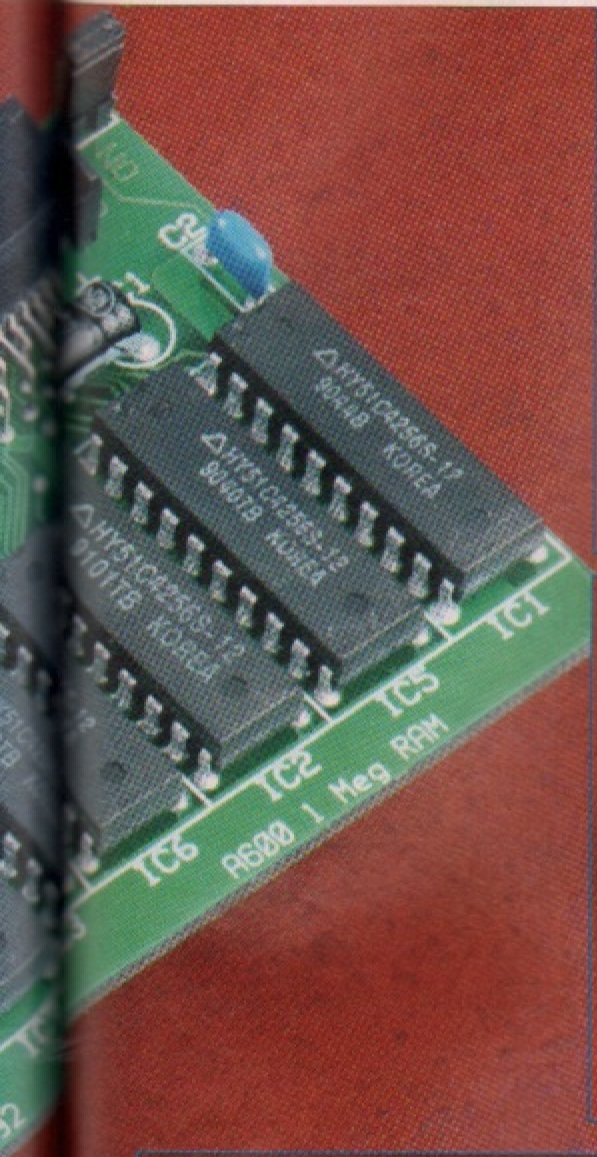
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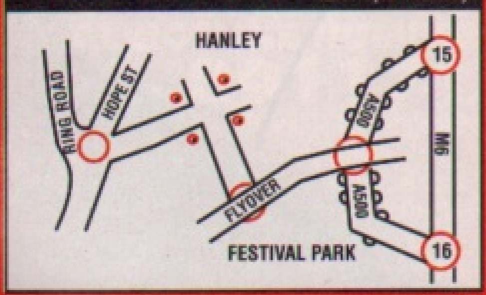
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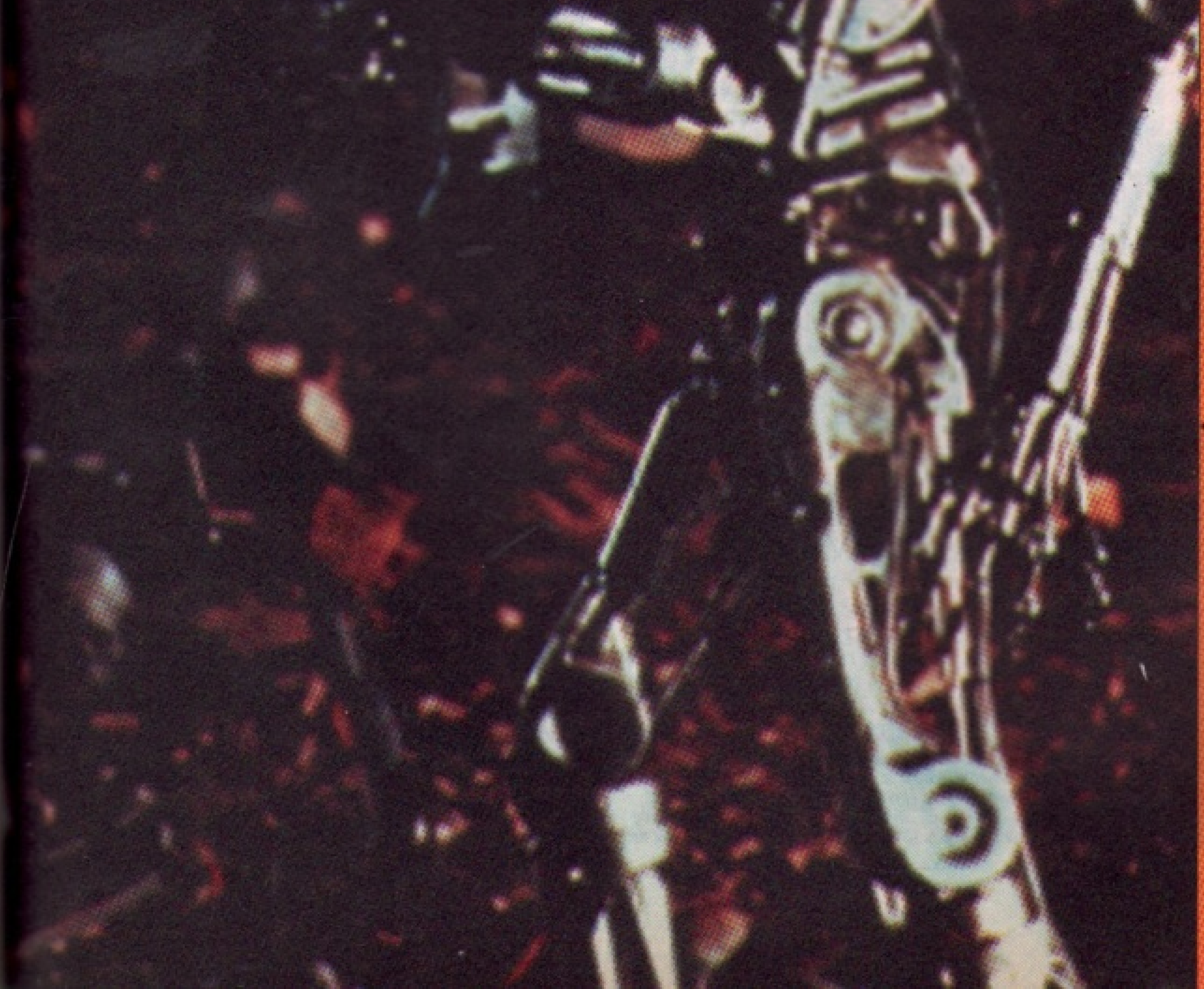
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# AMIGA Workshop

ISSUE 10

OCTOBER 1993

**Amiga Workshop is here to help you get the most from your Amiga. Whether you're after a step-by-step guide to *DPaint*, or want to know more about one of our recent coverdisks, then this is the place to look. Over the next 32-pages you'll find comprehensive tutorials and guides to some of the most popular programs on the Amiga.**



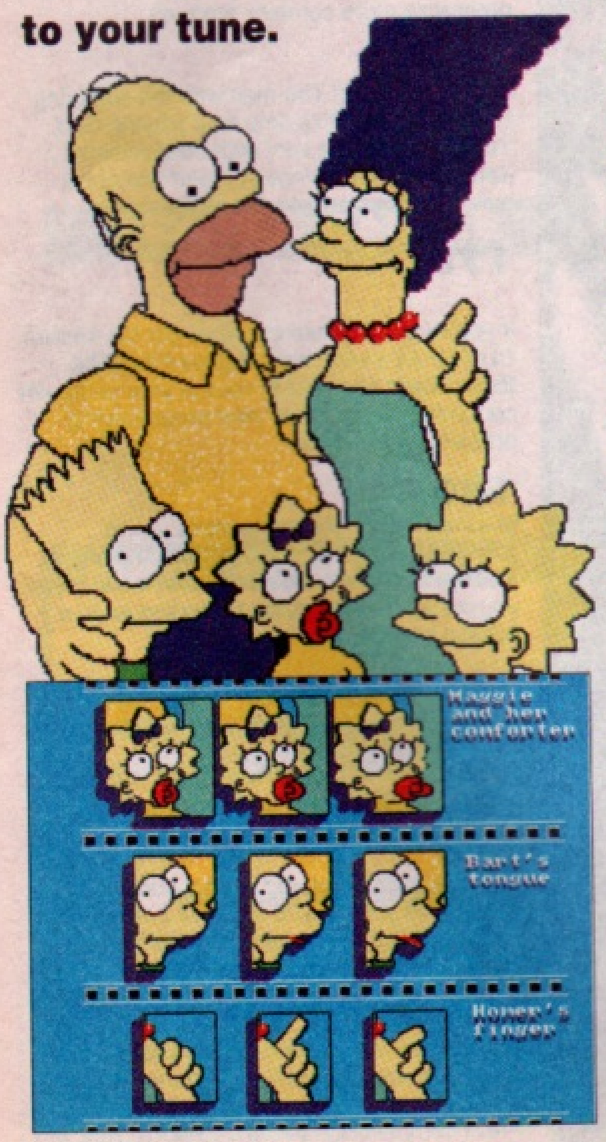
# DPAINT TUTORIAL

PART 9




**If animation features are the superstars of *Deluxe Paint*, then Anim brushes are the supporting cast; they can either make or break your Amiga movie.**

**This month CU's Peter 'Spielberg' Lee puts them in the spotlight and shows how to get them dancing to your tune.**




***Left:*** **You can use as many Anim brushes on an animation as you need. Small effects are sometimes the nicest. Here a static picture of the world's grossest family (or should that be highest- grossing family?) is brought to life with the addition of three Anim brushes, each allowing a character to move. Only Marge and Lisa are stuck for something to do, but give me time.**

Once you've mastered the basics of *DPaint*'s animation features, you'll soon find that your ambitions begin to stretch. *Deluxe Paint* is just the program you need because if ever a program made dreams come true, it's *Deluxe Paint*. This month we unearth more of its secrets by focusing on its animated brushes which offer the kind of fancy footwork which can transform an 'OK' sequence into something that'll make you go 'WOW'.

## BASICS

An Anim brush is a totally different breed from a standard *DPaint* brush. Look on it as a mini-animation which can be painted on screen just like a normal brush. Although you can only see one image at a time as you move the brush around the screen, as soon as you begin to paint, however, the different 'cells' which make up the Anim brush are painted in turn. But how do they get there in the first place ? Read on...

## PICKING IT UP

An Anim brush is a sequence of multiple images held in the computer's memory. So, you first of all have to create a range of images which, when played back, will give the impression of movement. This is done by animating a series of frames, as we've been doing for full-screen animations. It may help to imagine an Anim brush as a small window cut out from a complete animation sequence.

You can create your full-frame sequence by using the move requestor on an object over a number of frames (text spinning around, for example), or by copying and amending an image by hand as in the style of cartoons. We've covered the use of the move requestor fully, but there are differences in technique for hand-created animations depending on whether you are using *DPaint III* or *IV*. Here's how you would draw a multi-frame animation based on editing a single drawing. First of all, create the number of blank frames the sequence will span. Use the spare screen as your scratchpad for creating the first image, then cut it out as a brush and paste this into frame 1 of your animation and move to frame 2 (which is blank). Switch back to your spare screen and prepare to add movement by subtly altering your original drawing.

In *DPaint III* you will find it easier to call on the wide range of protective functions offered by the program. For example, background fix or stencil will allow you to safely amend original drawings, preserving the original until you free it. In any event, if you make a real hash of it, remember you always have the starting image in frame 1 as a safety net.

## PENCIL TESTING

For a quick pencil test (that's tech-speak for a dummy flip through of the work in progress) go to the animation sequence and hit key 2 to cycle through the frames as fast as you like. By pressing 2 and 1 you can move backwards and forwards to get a feeling of how things are going. In *DPaint IV*, life is simplified in some ways by the inclusion of the Light Table; a feature which mimics a technique which professional cell animators use called onion skinning. (Onion skinning is a buzz-word which describes the ability to see through a number of consecutive frames as if they were transparent.) This allows for real control of object placing and editing.

## BRUSH WORK

Time to join the main stream of the article now you have your animation sequence doing just what you want. Now's the time to clip out that all-important Anim brush which you'll be using as part of a bigger and better sequence.

Nothing could be simpler: go to the Anim pull-down menu, highlight Anim Brush/Pick Up and your cursor will turn into a full-screen crosshair. Position the crosshair at the top left of the area you want to pick up as an Anim brush, click the left mouse button and drag out a rectangle to encompass the whole sequence.

Remember: your chosen portion of animation might take up more screen area on subsequent frames than the one you're currently cutting from. Allow enough area around the edges to catch all the movement you want, otherwise you'll miss bits off. The Anim brush is not too bright because it will pick up the selected area from every frame in the current animation.

For example, if you had created five frames of movement on a 20-frame sequence, it would pick up clips from all 20 frames, leaving you with an Anim brush of five images and 15 black holes. Not clever. So always make sure the number of frames is correct before you pick up an Anim brush; delete the redundant ones beforehand.

*DPaint*'s only real control over an Anim brush is the handy Anim brush settings requestor, which allows you to specify the duration of the brush, the starting cell number, and the direction the brush should 'play' when it's painted down.

Anim brush duration is effectively a speed control; if you have a duration figure larger than the number of actual animation frames, the Anim brush will appear to slow down. To speed it up, just make the duration smaller than the number of frames. The three direction buttons allow you to paint your Anim brush forwards, backwards or in a ping-pong fashion.

*TIP* – once you have captured your Anim brush, you can see exactly what's in it by keeping your finger on the 7 key. This cycles through the images in the brush.




**Above:** Ee-ay-addio we're not going to win the World Cup; but who cares? Stay at home and animate. This sequence has three distinct sections. For a start, the ball is itself an Anim brush. I just rotated a soccer ball around 360 degrees on a 10-frame animation and cut it out as an Anim brush.

The CU logo is another brush, which I revolved 360 degrees over 20 frames and clipped it out as – you've guessed it – an Anim brush. Using a line of text, I animated the ball across the screen in a 20-frame animation and I manually deleted the text which had not been 'revealed' on a frame-by-frame basis. Then I picked this all up as one Anim brush.

So now we have our ingredients: a soccer-player background on a 20-frame animation, an Anim brush of a revolving ball uncovering a line of text and the Anim brush of the CU logo. The only unusual part in adding these elements together was in stencilling everything out, except the background colour, when I placed the CU logo to keep it behind the footballer.

REMEMBER: by using the move requestor with all the parameters set to zero, *DPaint* will draw your Anim brush in one spot, frame by frame. This is how I placed the CU logo and ball Anim brush.

***TIP*** - You are allowed one Anim brush AND one static brush in memory at once. If you have an active Anim brush, and then clip out a normal piece of artwork, you can access either by right clicking on the toolbar' s brush icon.

## BRUSH UP ON SOME TRICKS

Anim brushes are treated by *DPaint* just as if they were static brushes with the added attraction of movement. If you have an Anim brush active and paint on screen with it, the series of images which make up the mini-animation will be painted in sequence. The same is true with all the drawing tools; from circles to rectangles.

To get the most out of this feature you'll have to be able to control the spacing requestor, which we covered in an earlier tutorial. The spacing register is called up by right clicking on the line icon in the toolbox menu. Activating N Total or Nth dot fields allows you to paint your Anim brushes at specific intervals. So, for instance, if you have a 10-cell Anim brush and set the N total field to 10, every line you draw on screen with the Anim brush active would have your whole Anim brush sequence painted along its path, regardless of whether the line was short or long. This gives some amusing effects, but nothing practical in terms of animation.

To get the most out of the Anim brush and Spacing combination you need to be able to paint an Anim brush over multiple animation frames. There's a simple way to do this. If you have an Anim brush active, a number of animation frames ready and waiting and a drawing function selected (line, circle or whatever), then by keeping the left Amiga (A) key pressed as you draw, *DPaint* will advance a frame of animation and a cell from the Anim brush automatically and paint it down.

Using this technique you can give paths to Anim brushes. A man walking on the spot in an Anim brush can be made to cross the screen during an animation, or a plane with a revolving propeller can fly by. Anim brushes give you the chance to place movement within a moving sequence and used imaginatively they will bring your work to life. CU

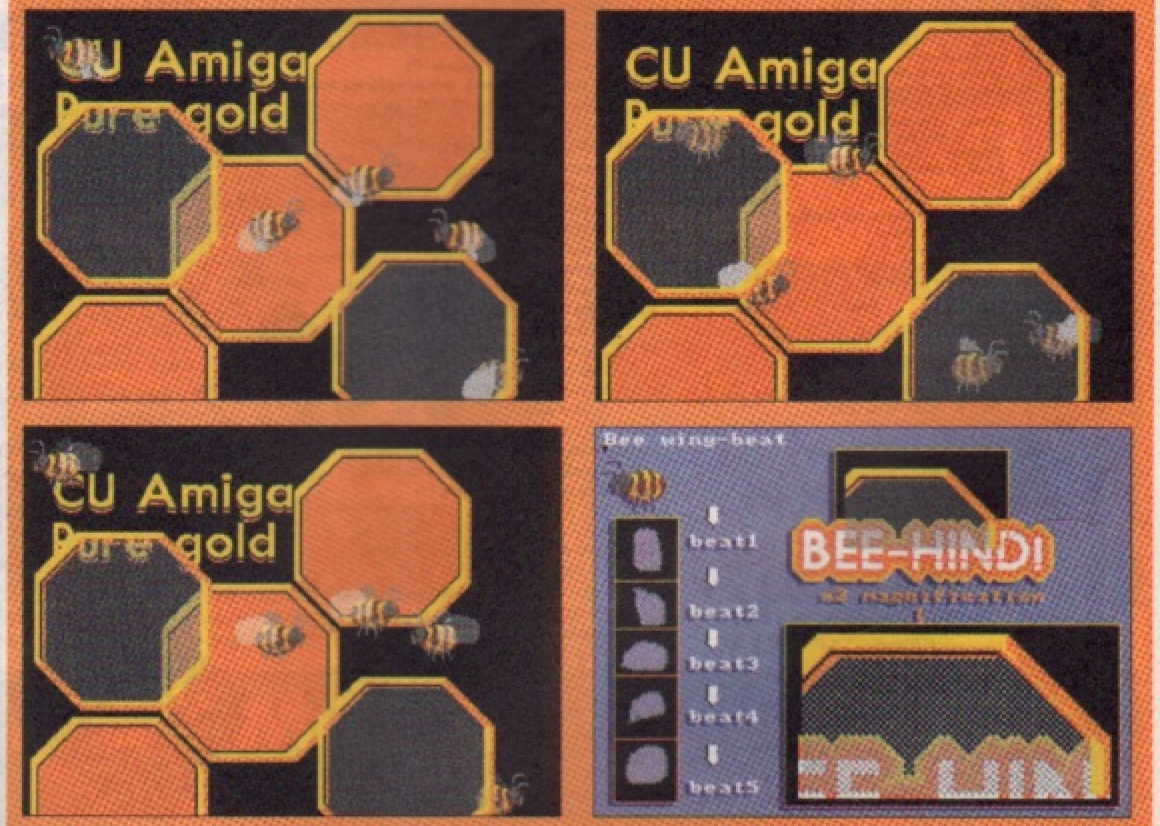
## BRUSH UP ON BEES...

Here's a neat flight of fancy which pulls together several techniques and brings them to life with the addition of an Anim brush. The bee is a five-cell Anim brush, where the wings are in different positions in each cell. First of all, to make the Anim brush I drew the plump body and head on frame one of a five-frame animation and then I copied this to the other four frames. Next, working on the spare screen, I drew a chequerboard pattern of white and blank dots. Every alternate dot was the same colour as the background colour and therefore invisible, so this would give the appearance of transparency when painted on top of an existing image. Using the 'brush option' in the fill requestor allowed me to select the filled freehand tool and draw wings in various stages of flight. These wings were filled with a checked pattern. Using cut and paste from the spare screen to consecutive cells, it was simply a matter of placing the wings in the right order onto the bee's body in the animation sequence.

Being able to see through the wings added a neat touch of realism. I added a background wing in a slightly different way. First of all I darkened the original transparent-fill colour to a mid grey and drew the filled shapes directly onto the animation frames. Using the Anim Brush/Pick Up pull-down menu option, I picked up the bee and deleted the five original frames. Remember to save your Anim brush at this point for future use or editing.

I wanted a mini-swarm of the insects buzzing across screen, so I created a 20-frame blank animation as a starting point. By right clicking on the line tool I accessed the spacing requestor and changed the N total to 20 which is the same as the animation frame count. I activated the selection by clicking in the N total box. This would use the length of a line to space out 20 images taken from successive cells in the Anim brush. So, with my finger pressing the left Amiga key, and the line tool selected, I dragged out various paths across the length of the screen and watched Anim paint the Anim brush along the direction I'd drawn. I changed the angle periodically to give a sense of randomness. I also flipped the Anim brush in the X plane (key x) so I could have bees flying from right to left too. Six bees seemed plenty.

Now to add the background. Switching to the spare page I drew a simple hexagon and designed a backdrop. Adding the 20-frame animation to this should be second nature to you now. Go to the animation sequence, select Merge Behind from the Spare pull-down menu and select all frames. Your design from the spare page now becomes the background to the flying bees animation. I wanted some foreground interest too, so by using the transparent chequerboard fill in the hexagons and placing them in different locations I was able to use the Spare/Merge In Front option to overprint the existing animation. Now the bees fly over the solid patterns and behind the transparent ones.




Bees in flight coming at you every which-way. The nuts-and-bolts screens show how the bee was constructed from one body and five pairs of wings and how the semi-transparent foreground objects were created.

## LIGHT TABLE

The animation light table is one of *DeluxePaint IV*'s more professional touches. This excellent Light Table enables you to make a series of Anim frames transparent; which means that you can see earlier and later frames ghosted on the same screen as if you were working on clear celluloid; the traditional movie animator's final medium.

Once you have set up a series of animation frames, the best way to access the light table is through *DPaint IV*'s Anim control panel. The control panel is another innovation with this version and is accessed with an Alt/a joint keypress or directly from the Effects pull-down menu.

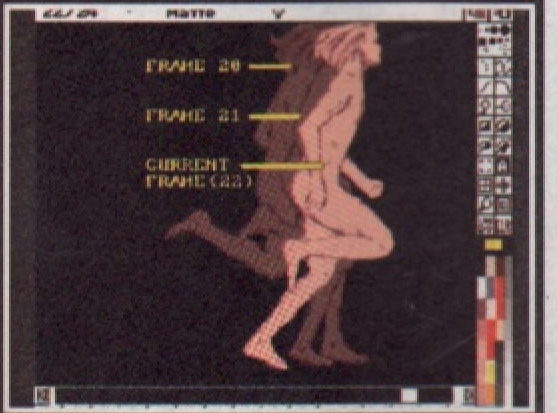
You activate the light table by clicking on the light bulb icon and it immediately ghosts the previous frame behind your currently displayed frame.

Clicking on the N icon shows the next frame in the sequence, so depending on how much information you can cope with on screen at once, you can have either or both selected.

While in the light table, all normal drawing tools are available, which makes it very easy to draw the in-between frames on a start-and-end animation. If you can see where an object was on a previous screen, you can then position it on the current screen with extreme care and precision .

NOTE - Even though you have so much information on screen when using the Light Table, *DPaint* is always aware of which is your current screen. Try picking up a brush; no matter how many ghosts are on there and all you'll end up with is the image from your currently active screen.
Brilliant or what?




*DPaint IV*'s Light Table gives you the kind of X-ray vision all animators long for. Traditionalists use clear cells or see-through tracing paper to check what they've already drawn. *DPaint* does this for you, and as you can see it paints on-screen the history of your animation. It also paints the future of the animation, if you want to see the up-coming frame. The Light Table can be invoked from the animation control panel at the bottom of the screen or by a pull-down menu option. (The figures I used for this example are from the 'Real Things Humans' set of *DPaint* Anim brushes – for more information ring RGB Studios on 0825 732 666.

## CARVE UP

A very simple Anim brush brings this sequence to life. Using five frames, I drew a jigsaw in various lengths as it moved up and down. Picking this up as an Anim brush and Anim painting over a wooden background I gave the impression of a saw cut. I added the actual cut lines after the Anim painting, frame by frame, then I added a ten-frame sequence of the lower half of the image falling down to complete the illusion. So, it's true, one tiny Anim brush *does* make a difference to your work.



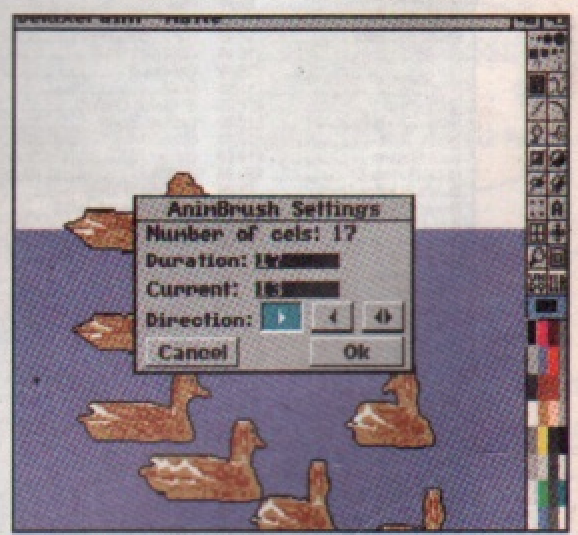


Here's an example of how one small Anim brush can bring a sequence to life. I drew a pad saw two inches high, then using the grid function for perfect positioning, I added a copy to each of five animation frames. I lowered the blade a grid step each time. With the grid still active, I cut the bottom of each saw blade off at the same place. When the animation is played in ping-pong mode (key 6), the saw appears to move down and up; just like the real thing.

With this five-frame sequence safely cut out as an Anim brush, I drew the wooden screen and added the lettering, creating a 20-frame animation. By activating the line requestor's N total and setting it to 20, I could now Anim paint my line across the background screen and watch the padsaw Anim brush animate its way across.

The final effect (of the lower half of the screen falling off) was a simple brush move carried out from the move requestor. I also added cut marks across the whole sequence by hand, for that bit of added realism.




Both *DPaint III* and *IV* give you the same degree of control over your Anim brush. You are able to play Anim brushes either backwards or forwards, or have them start from a particular frame number which gives you a real degree of control.

## NEXT MONTH

In the next installment of Peter Lee's *DPaint* series he'll be rounding off the Anim brush theme. This will include a special feature for users of *DPaint IV* as Peter will show you how to get the most out of the stunning brush metamorph option and how painting modes and effects can be used to give exciting results to animations. For those owners of AGA machines who are still trying to get grips with the new *DPaint* this should help you get the most from this stunning paint package.

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# VIDEO TITLING ON YOUR AMIGA

**This month, Jim Strutton looks at creating a title sequence for your video production and how you can make a complete video without even so much as even touching a camcorder.**

PART 4




If you need to put more than one or two pages of titles into your video, the whole thing can be a bit of a trial. What you need is a tool that will organise the graphics and do the hard work for you. *Lights! Camera! Action!* (*LCA*) is exactly the software that you need.

*LCA* can organise graphics using both lo-res and hi-res format graphics. You can incorporate any pictures you want with *LCA* once they are converted to lo-res. To convert your pictures you can use either The *Art Department* program, which was free with the May issue of CU AMIGA, or you could convert your pictures in *Deluxe Paint*.

There are some drawbacks, though, with *LCA*: you cannot use HAM, AGA or any over-scan pictures and it is important to remember that all the graphics should use the same palette or else the colours will look terrible when you change frames.

## LET'S GET STARTED

To access *LCA*: load up a copy of the *VideoTitler* disk and then double click on the LCA icon in the disk directory. After the sign-on messages have finished you will see an empty LCA project. In the centre of this program box are four areas: frame number, time, frame and action. Frames zero and one are created automatically for you, because you must always have a start and end frame as a minimum for any project. The four control buttons at the bottom right of the box are: insert a frame, edit a frame, delete a frame and clear the whole project. Be very careful with the last control button because even though it does give you a warning, one slip of the mouse and you've lost all your hard work.

First of all, go to the 'insert a frame' box. Choosing 'insert' will place a new frame before the frame that you want to select. Start by selecting this previous frame, "***End Black***", by clicking on it with the left mouse button. Now click on the 'insert' button and you should see a new frame called "***Blank***". Click to select it and then click on the edit button. You will now see a new screen like the one in *Figure one*. I have captioned this, so you can see what the various controls do. To make the frame do something, you click on the blank button in the top-left corner. Select the 'show still' option from this menu and then release the button. Click on the 'file: box' and use the requestor to select a graphic that you know to be lo-res. Set the 'time: box' to 10 and click on OK.

Now enter <Right-Amiga> 'P' to play back your sequence or use the 'play once' option from the video pull-down menu. You should see a black screen followed by your selected picture, followed by fade-to-a-black screen. Click the left mouse button to get the main screen back. Once you get it to work, add another frame. Select the last frame and click on insert as the new frame is always put before the one you have selected.

Now you can edit your new frame. Try some of the 'block:' and 'MVP:' functions at the bottom of the screen. The possibilities are endless for your frame. For example, you can change the speed of the events or you could even change the starting position of frames by clicking on the various options and selecting from the menus. The combinations are numerous; so experiment for a while.

Once you have finished experimenting, click on the clear button to erase the frames and get back to a clean project. Insert a new frame as before and open up the edit dialogue. Select the option 'play Anim' from the top left box and then select a suitable lo-res animation. Click the OK button and then play back the sequence as before. You should see the animation play once and then the familiar black screen. Edit the frame again and this time change the values in the speed: and repeat: boxes. If you change the number in the frame: box, you can change the start frame in the animation.

You cannot judge exactly when the animation will start, because of the time it takes to load. However, there is a way around this. First of all, clear the project, add two blank frames, open the first frame for editing and select the load buff option. Then change the 'buf: box' to 1 and then select your animation file. Now edit the next frame. Select 'play Anim', but instead of a file, change the 'buf: box' to 1. Make any speed and repeat changes you want and then click on OK. Play the sequence back and note the difference, you will see a black screen until the animation plays and then the animation will run from memory.

You can add to this effect by putting a still graphic as the first frame for about 20 seconds. This will be displayed, while the animation loads in the background. To do this you can use the buffers numbered from one to ninety nine, assuming you have enough memory. Buffer zero, however, is used by the system to load everything else, so leave that alone.

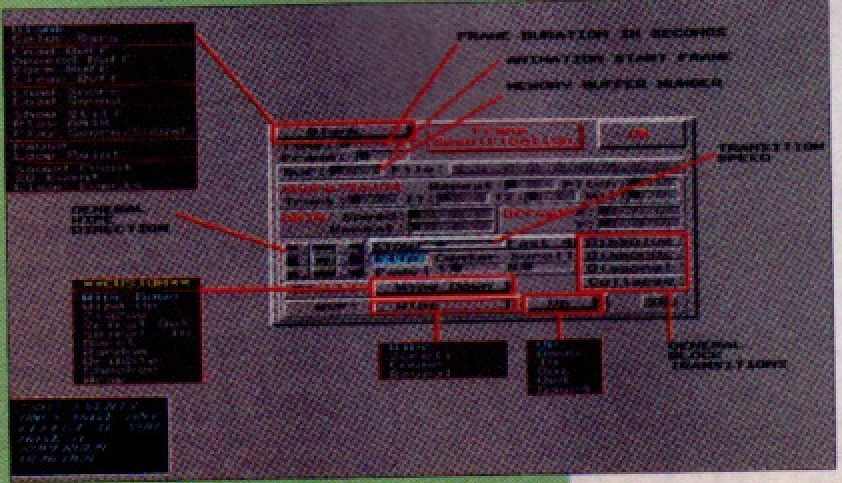
You can load stills or animations into buffers, so you could use a buffer to load a base graphic that you were going to come back to several times. You can even load a series of animations into a single buffer using the 'append buff' option, but watch your memory.

The 'color bars' option also provides a useful set-up screen for your presentation. The 'loop point' option identifies the frame that you want to loop back to when the script reaches the end, but it only works if you select 'run loop' from the menu. If you want the script to pause at a point, then add a pause frame.

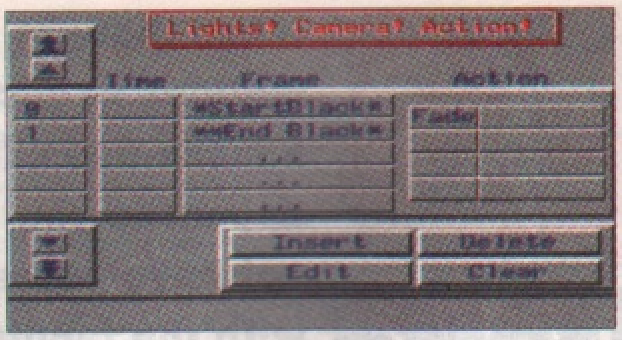
Having mastered all these little tricks, how do you go about using it to create your video masterpiece? The professional way is to edit the video shots, time the sequences and then set up LCA with the times for each frame.

However, you can cheat by creating a sequence of graphics and then running the script

*Figure 1:* The main option edit screen of LCA. All the various controls and options have been captioned in the pictured.



under manual control, <Right-Amiga> 'M', which means that the changes only occur as you click the mouse. If you need a black screen as a break in your sequence, just leave it as a "**Blank**" frame. Any reference to SG in the program is for Digital Creations' SuperGen GenLock, which is only available in the USA.




This is *LCA*'s main screen. To get the edit options menu, go to the 'insert a frame' box. Choosing 'insert' will place a new frame before the frame that you want to select. Start by selecting this previous frame, "**End Black**", by clicking on it with the left mouse button. Then the edit option menu will pop up.

## HOW TO MAKE AN INFORMATION VIDEO

The hot subject in the AVPG (Amiga Video Producers Group) at the moment is the creation of information videos. These are low-cost productions that consist of a series of graphic frames and short animations lasting two and three minutes which are then repeated on a long tape. You create these productions by designing the graphics and animations and then load them into LCA as a script.

Ideally, it should all run from memory after loading, or the disk drive could wear itself out.

To make your own information video you must, first of all, connect a GenLock or PAL encoder to a VHS VCR, ideally with a Long Play or LP option. Now put in a good-quality four-hour tape and just loop the script, leaving it to record for eight hours on LP. These tapes are then ideal for use in a store window, overnight or during the day for a moving display. A TV and VCR should not cost too much, or any hire shop could supply the equipment. A quality tape will play 100 times before the wear is noticeable, so it has a life of about three months. Rather than producing copies, offer an update service with a new tape every month. Charge to set up the graphics information and then charge less for each update. The going rate is from £200 for the initial tape and about £70-£80 for each update.

You may not make enough money to retire, but you can surely make a good contribution to your equipment budget. Start off by making a demo tape. Keep it short, keep it punchy and above all make sure you use your very best graphics. Loan, don't give this tape to prospective users. Leave it with them for a couple of days before going to collect it and ask them what they think.

If you hit the big time, make sure you write and tell us at CU AMIGA.







Above: This is a single graphic frame from a late booking advert video for a travel agency.
The picture beneath it is the starting frame of a video for a secondhand car dealer.

## NEXT MONTH

**Next month, we will be covering basic video editing. Using Video Director as an example, we will show how to make the editing process less painful. Roll the Amiga...**

# GAMES PROGRAMMING MADE EASY

**PART 6**

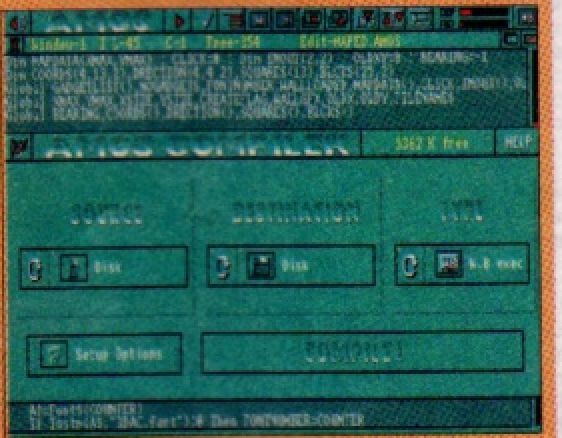
AMOS

**If the thought of chasing millions of ghosts around a maze doesn't really appeal to you, then why not have yourself a blast with the fabulous Dave Smithson's latest creation – *AMOSteroids*. Pixel violence rules ok!**

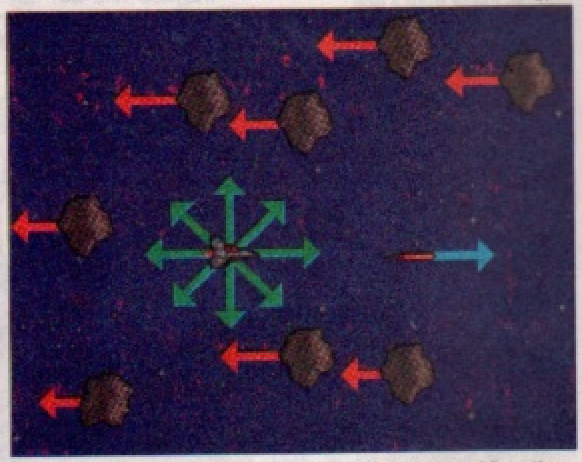
Ask any would-be games programmer what type of game they would most like to write and chances are you'll get the same answer over and over again – a shoot 'em up. Even in these days of complex strategic simulations that take months to complete, the good old shoot 'em up is still the number one choice amongst budding Amiga games programmers. Perhaps it has something to do with the fact that the shoot 'em up delivers such instant gamesplaying pleasure. Or maybe it's because we still enjoy blasting the hell out of pixelised baddies!

Having already taken a good long look at *PacMan*, this month we move our attentions to the shoot 'em up which uses a very simple 'blast everything in sight' arcade game called *AMOSteroids* as a demonstration. The basic idea is to write an arcade game that is as fast and as furious as possible without getting too bogged down in code. Sounds impossible? Don't you believe it. *AMOSteroids* (which, incidentally, you'll find on this month's cover disk) was written in under a day using nothing more than a sound sampler (for grabbing sound effects), a copy of *Deluxe Paint 4* (for designing sprites and bobs) and of course that all important ingredient, *AMOS*.

The version that you'll find on the coverdisk has been compiled for that extra spurt of speed (something that is definitely needed when writing arcade games) using the AMOS Pro Compiler.



If you want to write fast arcade games in AMOS, then you'll definitely need to get your hands on the AMOS compiler.



Drawing up a mock screen gives a much better idea of how the game should play. In this screen, you can see that the player's ship should be able to move to any point on the screen.

## THE BARE BONES

So how does it work? Well, the best way to design and code a game like *AMOSteroids* is to start by drawing up a game plan. *AMOSteroids* isn't very complicated at all; the basic idea is to pilot a spaceship through an asteroid field by either avoiding the on-coming asteroids or by simply shooting your way through using your ship's laser cannon. In order to make this a reality, we need a number of basic ingredients. Here is our shopping list...

*The Player's Ship* – This will be an animated blitter object that can move around the screen under joystick control. I had originally intended that the ship would only be able to move up and down the screen.

However, I changed this when I realised that the game would be much more playable if you had complete control over the ship along both the X and Y axis.

*Asteroids* – Lots of 'em. In reality, I eventually decided upon a maximum of eight asteroids, all of which could be moving on screen at once. Ok, so it doesn't sound like a lot, but the beauty of *AMOSteroids* is the way it re-uses asteroids.

## PSEUDOCODE LISTING

START OF LOOP
Set score to zero. Initialise position of asteroids.
At the start of main game loop check if the joystick has been pushed up, down, left or right? If it has, update the position of the spaceship accordingly.
If the joystick has been pushed up to the positions of all eight asteroids check if a missile has been fired? If it has, move missile.
If it hasn't, check if the fire button has been pressed? Generate a new missile at ship's position.
Has the missile struck an asteroid? If it has; remove both asteroid and missile. Add 50 to your score. Has the score risen above a multiple of 1,000? If it has, increase speed of asteroids.
Has an asteroid collided with the player's ship? If it has; end game.
End game if it re-draws all sprites and bobs. Wait for vertical blank. Repeat main game loop until game ends.
Display score and high score.
Go back to start

## SPEED FIEND

If you've had a chance to play *AMOSteroids* yet, you will no doubt have already noticed just how fast it is. AMOS games generally tend to be somewhat slow, so how did we manage to squeeze such impressive performance out of AMOS? Well, apart from the fact that the version on the coverdisk is compiled, the main reason for the game's speed can be credited to the fact that the game uses no more than eight colours. Why? Although AMOS uses the Amiga's very rapid blitter chip to redraw bobs, they're still very slow when compared to hardware sprites. By using a screen with a minimal number of colours, however, it is possible to get a large number of bobs moving rapidly on screen simultaneously.

Blitter objects are drawn directly onto a screen's bitmap, so the more colours you use, the more information the blitter is forced to move around. I did originally try writing *AMOSteroids* in sixteen-colour mode but it proved to be just too jerky for comfort. If you count the number of colours used within the game, however, you'll notice that there are actually eleven colours on screen rather than eight. How did we manage this? Simple; you use hardware sprites. Sprites take their colour information from colours 17 to 31 onwards, so it's actually possible to display up to 24 colours on an eight-colour screen.

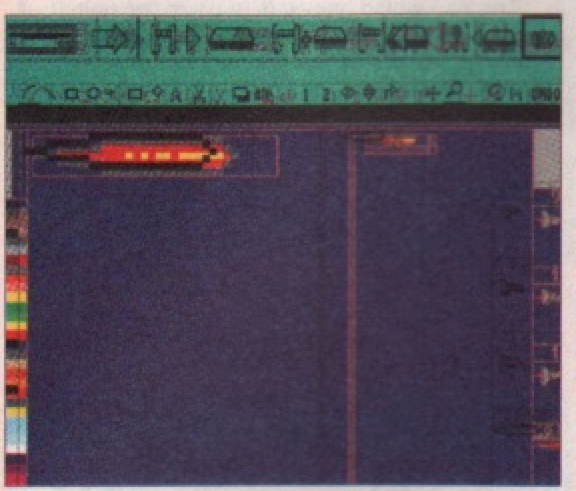
If you're intending to write an arcade game that needs to run very fast, then try to use hardware sprites as much as possible. Even if you find them rather limited, don't forget that AMOS offers its own derivative in the shape of the virtual sprite. Up to 56 of these beauties can be shown on screen at once with up to 16 colours each, so sprites aren't as limited as many AMOS programmers make out.

Another way to get an arcade game running as fast as possible is to turn off AMOS's famous automatic sprite redraw and AutoBack facilities that redraw blitter objects instantly and handle double buffer respectively. Don't worry too much about the technicalities behind this; we'll be covering this last technique in quite some depth very shortly.

For example, when an asteroid has travelled across the screen and disappears from view, it's turned off and a new asteroid is generated in its place. The asteroids should move at different rates, therefore allowing some asteroids to overtake others. Not only will this make the game more challenging, but it will also give a greater feeling of depth to the asteroid field. Finally, the asteroids will be animated so that they appear to roll as they move across the screen.

*Missiles* – Well, a single missile actually. The player needs some way of blasting any asteroids that are in their way, so the player's spaceship will need to be armed with a laser cannon that can fire a missile at the oncoming asteroids. If you're feeling adventurous, you may want to have a go at extending this routine so that several missiles can be fired.

*Collision detection* — Two forms of collision detection will need to be taken into account. Firstly, we need to check whether the player's ship collides with any of the asteroids. If it does, then the ship will be destroyed.



Using hardware sprites within your AMOS games can increase the number of apparent colours on screen.

Secondly, we need to check whether the missiles fired by the player's ship hit any of the asteroids. If this happens, the asteroid in question is destroyed and the missile removed from the screen. If we were to allow the missiles to hit several asteroids, the game would be far too easy. As it stands only a single asteroid can be destroyed per shot.

*Game Progression* – They say practice makes perfect, so our game will totally screw this theory up by making the action progressively harder as the player progresses through the game. This is vital in every arcade game because if you make every level just as easy as the last, the player will complete it in no time and get very bored with the game. I did have a number of ideas on how to keep a player's interest when I originally designed *AMOSteroids* and I finally plumped for a simple routine that increases the speed of all the asteroids every time the player scores 1,000 points.

## IDEAS INTO ACTION

Now we've got a basic overview of how the game should play, we need to draw up a basic outline of how the game code will work by designing the 'main game loop'. As any games programmer will tell you, the main game loop forms the heart of all games and without it, your game won't run. It controls the flow of the game from a very high level.

Do not to attempt to get stuck into your coding straight away, you should design your main game loop using what professional programmers call pseudo code. Those of you who read my *PacMan* tutorial will have already encountered pseudocode; basically it's nothing more than a description of the game code in English. The pseudo code for *AMOSteroid*'s main game loop is on the bottom left-hand corner of page 156.

Right, let's start by taking a look at the code that controls the player's spaceship. This is perhaps one of the simplest of all the routines used by the game as it does nothing more than to read the value returned from the player's joystick. If the joystick is moved up, then the ship is moved up by 4 pixels. If the joystick is pushed left, then the ship is moved left by 4 pixels and so on.

Obviously, we need to confine the spaceship in the boundaries of the screen, so a couple of very simple checks are made to make sure that the X and Y co-ordinates of the ship blitter object never fall below or exceed a set of predefined limits.

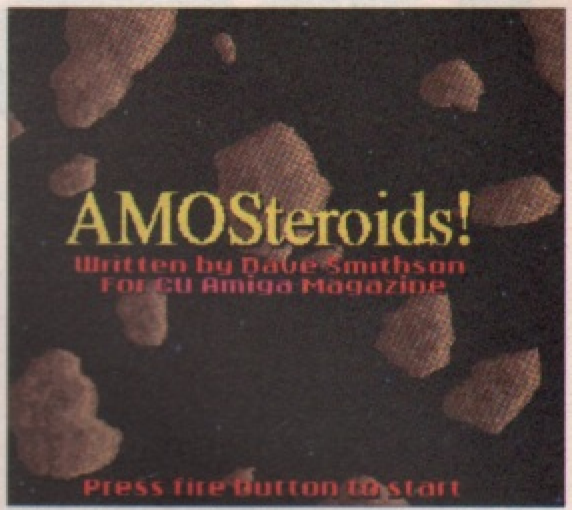
When playing the game, you may notice that the player's ship boasts a bit of very simple animation. Don't expect anything too flash; all I've done is to display a different blitter object image to indicate the roll of the spaceship. As the ship moves upwards, the ship rolls to the left revealing its undercarriage and when it moves down, it rolls right. We could have used AMAL (AMOS's interrupt driven animation language) to control this animation, but I've chosen a more manual solution that defines which view of the ship should be used according to the direction of the joystick. Anyway, here's the code in all its AMOS glory.

```
Rem *** MOVESHIP Procedure
Rem *** Moves player's ship using joystick
Rem *** SHIPYPOS = Y Position of ship
Rem *** SHIPXPOS = X Position of ship
Rem *** FRAME = Animation frame of ship
Procedure MOVESHIP
FRAME=9 If Joy(1) and 1
SHIPYPOS=SHIPYPOS-4 FRAME=10
End If If Joy(1) and 2
SHIPYPOS=SHIPYPOS+4 FRAME=11
End If If Joy(1) and 4
SHIPXPOS=SHIPXPOS-4 End If If Joy(1) and 8
SHIPXPOS=SHIPXPOS+4 End If
Rem *** Keep spaceship on screen
If SHIPYPOS<10 Then SHIPYPOS=10
If SHIPYPOS>230 Then SHIPYPOS=230
If SHIPXPOS<10 Then SHIPXPOS=10
If SHIPXPOS>285 Then SHIPXPOS=285
Bob 10, SHIPXPOS, SHIPYPOS, FRAME
End Proc
```

There's a couple of points worth noting about the code. Firstly, note how the joystick is read — quite a few AMOS coders read the joystick using a line such as: if Joy(1)=<value>', but this tends not to be particularly reliable, especially if the joystick that you use is a bit flaky.

What you must remember is that AMOS is also capable of reading diagonals too which can confuse your game resulting in a joystick movement routine that is unreliable and therefore frustrating for the player. By using the logic operation 'and', all eight directions of movement can be taken into account using just four IF...THEN structures. Try to keep this in mind whenever you attempt to write an arcade game that uses joystick input.

Finally, the space ship is kept within the screen boundaries by constantly checking the values held within 'SHIPXPOS' and 'SHIPYPOS', the two global variables used to keep track of the ship's movement. You can easily limit the area of the screen that the ship can move around in simply by adjusting the minimum and maximum values of these two variables. Note how the fire button isn't monitored at this point – this is done when we come to process the missiles. And the gameplay gets even more exciting next month when we'll be adding asteroids – so don't miss our next issue. CU




**Hidden in there somewhere is a cheat mode that will make your spaceship invincible. Can you find it in the source code? *AMOSteroids* may be a very simple arcade game, but it's very playable (if I don't mind saying myself!). Because the game becomes progressively harder, it's unlikely that you'll ever get a high score more than 10,000. If you can, then I'll be very impressed indeed.**

## PLAYING THE GAME

Unlike previous AMOS programming projects, I've decided to put our AMOS game on the coverdisk so that you can play it for yourself. Thanks to the wonders of the AMOS Professional Compiler, it is stand-alone so you can run it even if you don't own AMOS. Just double click on the *AMOSteroids* icon and the game will load. No extra files are needed, so you can easily transfer it to another disk if you so wish. All that remains is to plug in a joystick and get blasting!

The basic idea behind the game is to clear a path through an asteroid belt by shooting the asteroids with your ship's photon laser cannon. Your ship has a rather aged cannon that can only fire a single blast at any one time, however,so plan your shots well as you can only fire again if the blast hits an asteroid or leaves the screen completely. Points are awarded for each asteroid you obliterate but be warned that as you penetrate deeper into the asteroid field, so the asteroids become ever faster. Only the most adept pilots will survive!

If you find that you're not doing to well at all, then you'll be pleased to learn that I've also coded a cheat mode into the game. When you enter a certain combination of keys when the AMOSteroids title is showing, you'll hear an audible beep which will indicate that the cheat mode is active. From then on, your ship is totally invincible allowing you to blast away those nasty asteroids without having to worry about scratching the lovely paint job on your space ship. How do you access it? Well, that would be telling. I'll give you a hint though; you'll need to hold down the left shift key and enter a certain five-letter word. If you want to find out what the word is, then I'm afraid you're going to have to study the source code (which is also on the disk) for yourself. Happy cheat mode hunting! For those of you that fail to find it, I'll print it in next month's issue!

The cheat mode isn't just included for a bit of fun though; why not study the cheat mode code for yourself (I have marked out the section of code in question) and try adding a cheat mode to your own AMOS games. I think you'll find that it's a lot easier to do than you may just think.

## NEXT MONTH

Next month, we'll be taking *AMOSteroids* one step further with the addition of the asteroids. In the meantime, load up the compiled version of *AMOSteroids* that you'll find on the coverdisk and enjoy blasting those asteroids. Bet you can't beat my high score of 9150!

# HYPERBOOK MASTERCLASS




**PART 3** **Jason Holborn takes a another look at *HML*, *HyperBook*'s powerful *ARexx*-based macro language and even manages to find space to start work on a HyperBook database.**

Welcome back to the CU AMIGA *HyperBook* column, the section of the magazine dedicated to Gold Disk's multimedia marvel, *HyperBook*. Last month, we took our first tentative steps into the world of *HML*; *HyperBook*'s very powerful built-in macro language. If you read last month's article, you'll already know that *HML* lets you write scripts that provide low-level access to *HyperBook*'s many multimedia talents. This month we continue the theme by taking a further look at *HML*'s many and varied talents.

As your *HyperBook* applications increase in size and complexity, you may find it increasingly difficult to keep track of all the pages and objects that you've created. Thankfully, *HyperBook* does keep track of such elements and you can identify any object or page when you use *HyperBook*'s built-in object identification system. This identification system is a fundamental aspect of *HyperBook*'s macro language. It's vital that you understand this fact because virtually every command offered by *HML* expects to be told which object or page it should work on.

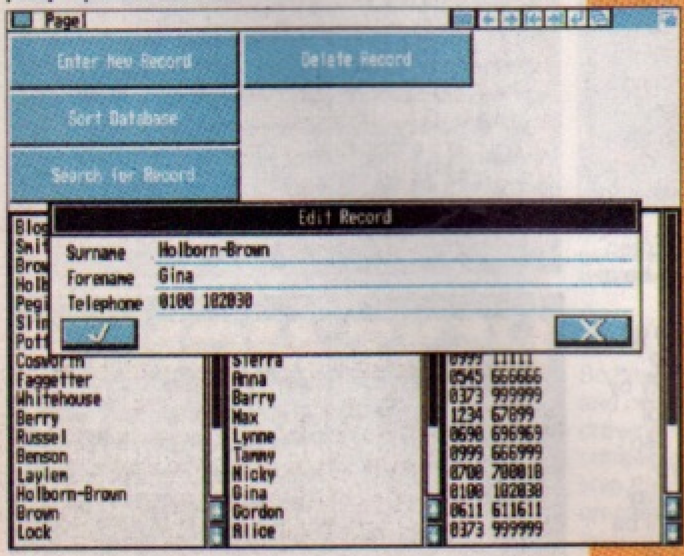
For example, if you had a page containing three 'list' gadgets, how is *HML* expected to know which object you're referring to?

For this purpose *HyperBook* uses a construct called an object number (better known as an objnum in *HML* terms). Every single page and object that you create is automatically assigned its own unique objnum which allows you to quickly pin-point an object or page, simply by telling HyperBook which object or page you are interested in.

*HyperBook*'s objnum construct has a very special format that is similar to an AmigaDOS pathname. Just like AmigaDOS, an objnum can consist of a volume name (a page), a directory (a group) and a file (an object), each of which is separated by either a colon (for a page) or a back-slash symbol (/) for groups and objects. In its simplest form, you can refer to a page only by passing the page number terminated by a colon. For example, the objnum construct for page 2 in your *HyperBook* stack would be 2:h Taking this example further, you could identify object 4 on page 2 using: 2:4.

Handling lists using *HyperBook* objnums is just as easy. If the list was object number 2 on page 3 and you wanted to work on the fourth item in the list, the objnum would be 3:2/4. *HyperBook* uses two special objnums: 0 refers to the 'Bin' window and a colon on its own refers to the current page.

Here's our HyperBook database after just a single issue – pretty impressive stuff eh!



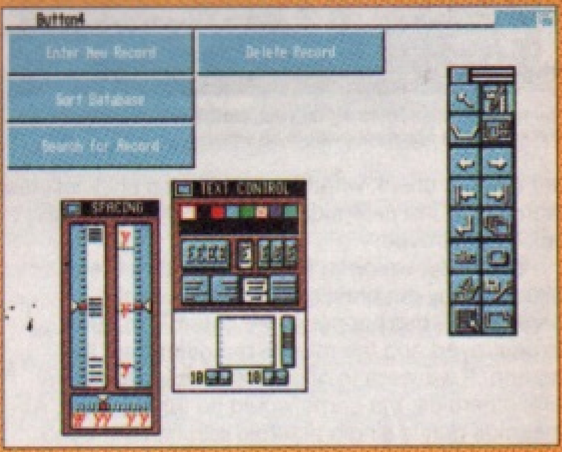

## WHAT'S IN A NAME?

Obviously, there's a big disadvantage with using objnums on the fly. How do you know what objnum is attached to what object? Simple: you pass *HML* the name of your object. This means that every object you create must have its own unique name. Therefore, its no good calling all your lists 'Mylist' or something similar. If you do, *HML* won't have a clue which object it should work on. In order to identify an object using its name, *HyperBook* has a special object name() function that will automatically get the objnum of any object. For example, if you had created a button called EnterRecord and you wanted to find out its objnum, all you would need to enter would be something like the following.

```
buttonnum = EnterRecord()
```

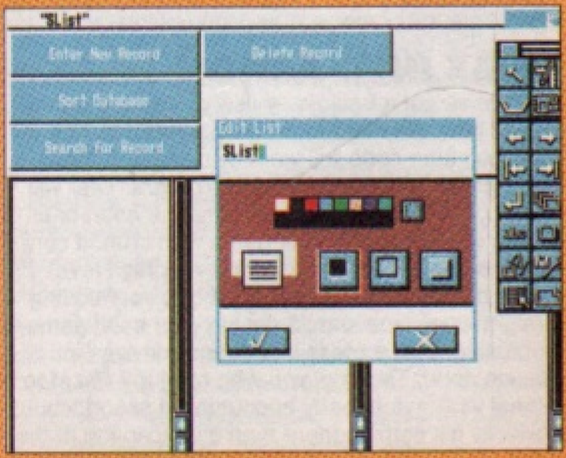
This line would ask *HML* to place the object number for an object (in this case a button) called EnterRecord into an *ARexx* variable called buttonnum. From here on, you can access that button, safe in the knowledge that *HML* won't be attempting to communicate with any other objects in your *HyperBook* stack.

They say the best way to understand anything particularly complex is to try it for yourself, so this is exactly what we'll be doing over the next couple of months or so. As promised last month, we'll be creating our very own *HyperBook* database that will allow you to keep track of all your friends' and relatives' phone numbers. So let's get stuck in.



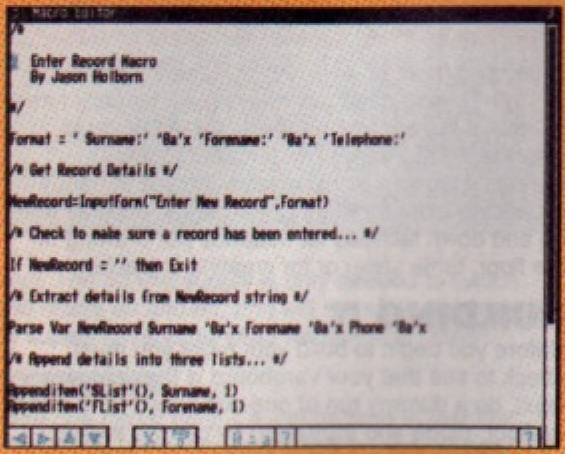

1 Before we can write any *HML* Macros, we need to start by setting up the database's screen display. First, let's start with the four buttons that will be used to control the database. Select 'Create Button' from the *HyperBook* toolbox and create four new buttons of equal size arranged on the screen as shown.

Once all of them have been placed onto the screen, select the 'Edit Object' tool and enter the labels 'Enter New Record', 'Sort Database', 'Search for Record' and 'Delete Record'.



**2** Next, we need to create three list gadgets that will contain the three fields of information that our database will hold. Click on the Create List tool and then drag out three lists of approximately the same size, shape and position of the those shown in the illustration above.

Our database must be able to access these three lists directly, so click on the Edit Object tool, click once on the first list with the left mouse button and then click once with the right mouse button to bring up the Edit List requestor. Change the name of this first list to SList and then repeat this procedure for the second and third lists calling them FList and PList respectively.




**3** Now, with the screen display now complete, let's start work on our first *HML* macro. In this case, the macro to control the input of new records. Go up to *HyperBook*'s pull-down menus, select Create Macro and enter the following macro:

```
LISTING....
/*
Enter Record Macro
By Jason Holbern
*/
Format = ' Surname:' '0a'x
'Forename:' '0a'x 'Telephone:'

/* Get Record Details */

NewRecord=InputForm("Enter New
Record",Format)

/* Check to make sure a record has
been entered... */

If NewRecord = '' then Exit

/* Split NewRecord string into three
variables */

Parse Var NewRecord Surname '0a'x
Forename '0a'x Phone '0a'x

/* Append details into three lists...
*/

Appenditem('SList' (), Surname, 1)
Appenditem('FList' (), Forename, 1)
Appenditem('PList' (), Phone, 1)

/* Assign 'EditRecord' macro to all
three entries */

Position = NumElements('SList' ())

SetActionMacro('SList' ()'/'Position,
'EditRecord')
SetActionMacro('FList' ()'/'Position,
'EditRecord')
SetActionMacro('PList' ()'/'Position,
'EditRecord')
Exit
```

Once you've typed it all into *HyperBook*'s Macro Editor, click on the window close gadget and call this macro EnterRecord.

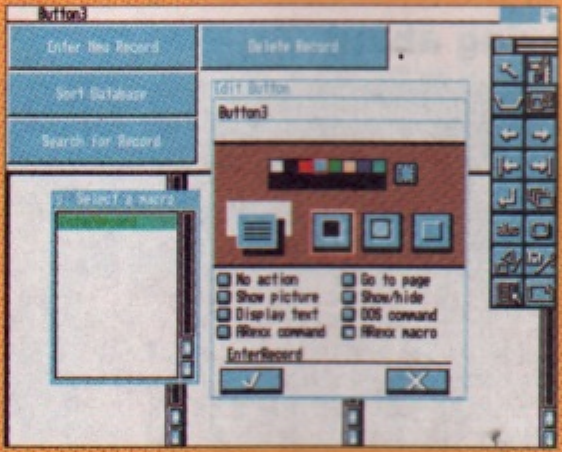
This macro starts by getting the record details from the user using the *HML* InputForm() function that we covered last month.

When you run this macro, you'll notice that three separate lines are requested; this is achieved by separating each line with a carriage return which is expressed in *ARexx* terms as '0a'x.

Once the record details have been entered, the resulting string is split into three chunks using the *ARexx* Parse Var command and stored into three *ARexx* variables called Surname, Forename and Phone.

The resulting variables are then transferred to our three list gadgets using the *HML* AppendItem() function.

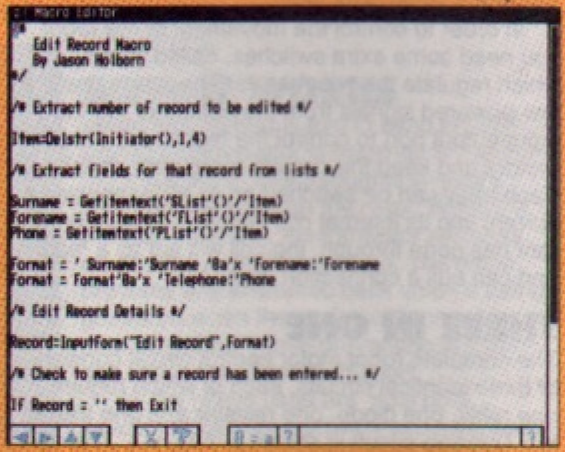
Finally, the EditRecord macro is attached to each entry so that when you click on any one of the three fields, the EditRecord macro that we shall be covering next is called up.




**4** Now that we've successfully entered the first *HML* macro, we need to attach it to the Enter New Record button. Click on the Edit Object tool and then click once with the left mouse button and then once with the right mouse button on the 'Enter New Record' button to bring up the Edit Button requestor.

When the *Arexx* macro gadget pops up onto the screen, click on it and select Enter Record from the 'select a macro' window that will pop up.

Once you've finished all this, exit the Edit Button requestor.




**5** With the EnterRecord macro now complete and attached to the appropriate button, we can safely enter the EditRecord macro that is called up whenever the user clicks on any of the entries in the three list gadgets.

To enter this data, first of all move the mouse pointer up to the *ARexx* pull-down menu and select Create Macro and and then enter the following *HML* macro.

```
/LISTING
/*
Edit Record Macro. By Jason Holbern
*/
/* Extract number of record to be
edited */

Item=Delstr(Initiator(),1,4)

/* Extract fields for that record from
lists */

Surname =
Getitemtext('SList' ()'/'Item)
Forename =
Getitemtext('FList' ()'/'Item)
Phone = Getitemtext('PList' ()'/'Item)

Format = ' Surname:'Surname '0a'x
'Forename:'Forename
Format = Format'0a'x 'Telephone:'Phone

/* Edit Record Details */

Record=InputForm("Edit Record",Format)

/* Check to make sure a record has
been entered... */

If Record = '' then Exit

/* Extract details from Record string
*/

Parse Var Record Surname '0a'x
Forename '0a'x Phone '0a'x

/* Put details back into our lists...
*/

Setitemtext('SList' ()'/'Item, Surname)
Setitemtext('FList' ()'/'Item,
Forename)
Setitemtext('PList' ()'/'Item, Phone)
Exit
```

Once you've entered this macro, click on the window close gadget and then call this macro EditRecord. To test it, try entering a couple of records with the 'Enter New Record' function and then click on them within the list gadgets to run the EditRecord macro. The record should be pulled up onto the screen inside an Inputform() display, allowing you to edit it. To send the record back to the list gadgets, just click on the ok (tick) gadget.

There's a number of interesting points in this macro. Firstly, the objnum is obtained using the *ARexx* string function Delstr(). By default, calling the Initiator() function will return the objnum of the item that the user clicked on in the form of Page-num:List/Item' (1:2/3, for example). But, because we need to extract the fields for the record that we wish to delete from all three lists, we use the Delstr() function to strip off the first four characters (the 1:2/ bit) leaving only the number of the item that was clicked upon. We can then use this to extract the same item from all three lists by building up the complete objnum using a string line 'objnum = 'SList'()'/'Item'. Clever eh!

Note too, how the edited record is put back into the three list gadgets using the *HML* function 'SetItemText()'. Have fun – I'll see you next month! CU

## NEXT MONTH!

Next month, we'll be extending our database even further with the addition of the Sort Database, Search Database and Delete Database functions.

# BUILD YOUR OWN ROBOT

PART 2

**John Kennedy is desperate to replace the entire staff at CU with androids. He is still trying to perfect his team of robots. In this, the second part of his 'Build Your Own Robot' series, he looks at how you can get your robot up and moving about.**

Last issue we looked at how the computer's practical circuit controls and receives signals from its surroundings. This issue we look at the mechanics of making your robot move and how you can control its movement. Let's start with the basics. The easiest robot you could build is nicknamed a buggy and is made up of a small platform which is carried around on some wheels with two motors. The two motors are independently controlled and each motor drives a wheel on either side of the platform.

How the buggy moves is simple; when both wheels move in the same direction, the buggy moves either forwards or backwards. When both wheels move in different directions, the buggy turns on the spot. Therefore, you can choose any direction and send the buggy off on its merry way until you decide otherwise.

How the robot finds its way around is also very simple. The platform can carry various sensors which provide the controlling computer program with details on its surroundings. For example, adding a touch sensor will enable the buggy to find its way around a maze. Or, if you add a light sensor, the buggy can follow lines or head towards a small desk lamp.

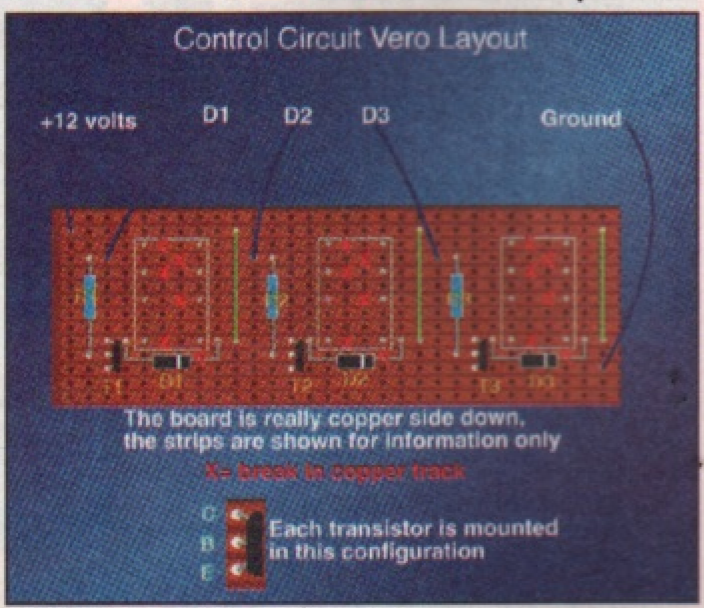



*Figure 1.* **The control board consists of three identical circuits like this one. The input signal comes from the I/O port which are connected to the Amiga.**

In order to control the movement of the robot you need some extra switches, called relays, which regulate the two motors. The relays use the low-powered signals from the computer via the input/output port to control the higher-powered motors and keep the circuits completely separate. Each relay can be switched on or off by passing a current into its internal coil becuase, once the current has gone through, the coil will act as a magnet and can pull a connection shut.

## THREE IN ONE

The complete robot motor control circuit consists of three identical circuits, each of which require one relay, one diode, one resistor and one transistor. This sub-circuit is shown in *Figure 1.* The control line comes from the I/O port we looked at last month; the excellent little RM9011. See last month's *CU* for details on connecting this little marvel to your Amiga's serial port.

However, before we go any further, some of you may have spotted that the photograph shows that my board has five of the sub-circuits on it. Why is this? Well, I wanted my robot to have one or two extra features and adding the switching circuits at this stage makes more sense than squeezing them on later. All right then, I admit it, I thought I would need five relays but it actually turns out that three will do. I certainly wasn't going to unsolder all the relays just for a photograph! Seriously though, extra relays will come in handy for adding extra facilities to the buggy; such as pen up and down facilities for instance (for drawing on the floor, turtle style) or for creating a grabber.

## WARNING

### READ THIS FIRST

We want you to enjoy building your project, so please take the time to read these warnings.

Although the project described here has been built and tested, neither the author nor CU AMIGA can be held responsible for any damage which may be caused to either yourself or your computer as a result of using it. As no mains voltages are required in this circuit it is extremely unlikely that you could electrocute yourself, but you should still take care. If your computer does not behave normally when the project is connected, switch off immediately. Check the circuit carefully for short circuits and wiring deficiencies. Always add or remove the parallel port connector with the computer switched off.

Never leave the soldering iron unattended, and always switch it off when it's not in use. It is all too easy to forget about it and then pick it up by the wrong end several hours later. If possible, wear protective eye-gear when soldering and use a vice or clamp to hold the circuit in place. Never splash hot solder around.

## LIST OF PARTS

| Description / Price | Number | Maplin's Code |
|---|---|---|
| Ultra Miniature Relay £2.25 | 3 (see text) | JX55K |
| ZTX300 Transistor £0.18 | 3 (see text) | QL46A |
| 1N4001 Diode £0.005 | 3 (see text) | QL73Q |
| 0K Resistor £0.03 | 3 (see text) | M10K |

Connection wire, veroboard, solder and a last month's CU AMIGA for details of the Input/Output port.

## BUILDING IT

Before you begin to build your robot you must check to see that your veroboard is the right size. Next, do a dummy run of one sub-circuit (one relay, resistor, diode and transistor) by placing all the components without soldering them on. Check the positions, cut the connection wires to size, remove them all and make the necessary breaks in the copper track. Check the breaks with a multimeter if possible, to ensure that none of the copper swarf pieces are causing a short-circuit. *Note:* the breaks in the tracks are marked with red crosses in *Figure 2.* The relays used are small enough to fit into a standard 16pin DIL IC socket, so it might be a good idea to solder one of these in place instead of the relay.

Next, solder the diode into place, and then the resistor, transistor and connection wire. Three long wires need to be connected to the board, and these lead to ground, a 12 volt supply and pin D0 of the I/O port.

Check *Figure 2* to see whether the diode and transistor have been placed in the correct orientation. The ground is the same as the 5volt's supply ground, so the wire can be connected to the I/O board connector GND. Likewise, the D0 wire can be soldered directly onto the I/O board. The 12volt, however, requires some extra thought. A suitable 12volt supply is available from pin 23 of the disk drive port, although a separate 12volt DC PSU would probably be wiser if you have an external drive fitted.

If you do use a separate PSU, you'll need to connect its ground line to the other grounds as

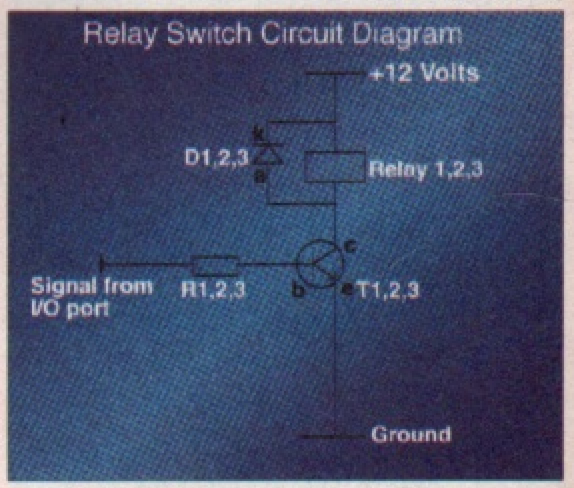
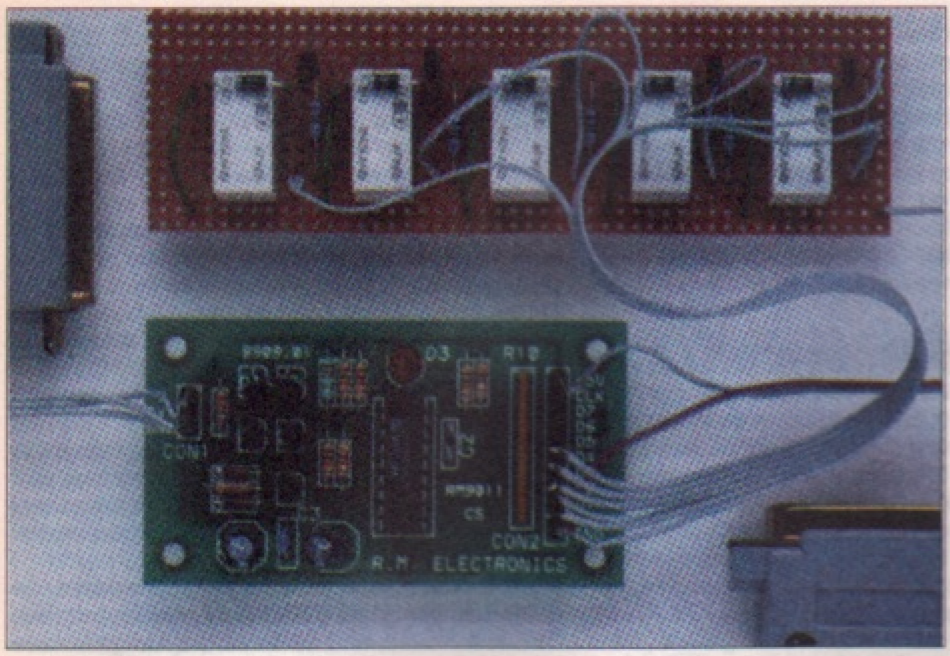



*Figure 2.* **This illustrates an example layout of the components on veroboard. The components are placed on the blank side, with their legs passing though to the copper strips beneath, where they are soldered into place.**



Here is the finished robot control system. Notice the Input/Output card discussed last month, connected to the DIY relay card via some ribbon cable. The relay card features several circuits – each with a relay, resistor, diode and transistor – each connected to a single output of the I/O card.

well. The 12 volt supply is only needed to switch the relays on and off, and will therefore only need to supply several hundred milliamps of power.

## TESTING

With one circuit built, it's a good time to test that everything is working according to plan, so connect the 25way serial connector and the 23way disk drive connector and switch on the Amiga. If the normal boot-up process doesn't start, *switch off immediately* and check your wiring. If the computer does boot up, load a Comms program such as NCOMM, and set the baud rate to 1,200. Use the split screen option, and enter: !C0 (return). The capital letter is important, as the I/O interface doesn't understand small letters.

This command quickly configures all the I/O port's control signals to be outputs. If the LED on the I/O interface doesn't flash, check to see if the Comms software is set-up correctly. Now enter: !W1 (return) This instructs the interface to make line D1 go high (switch on). The relay on the board should 'click' as it turns on.

Now enter: !W0 (return) and the relay should click again as it turns off. With this important test completed, you can switch off the computer and continue soldering until all the relay circuits are in place. Now you can perform the test again, except that this time use the values 2 and 4 as well as 1 with the !W command. You should be able to switch each relay on and off individually.

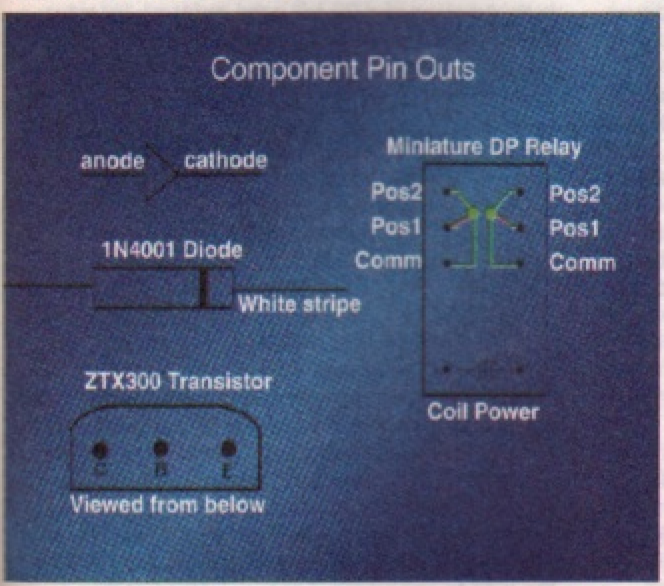



*Figure 3.* **Here we see the pin-outs of the diode and transistor. The relay connections show how it works inside: when no voltage is applied to the coil, the Comm and Pos1 switch is made. When the coil is turned on, Comm and Pos2 are connected.**

## PROBLEMS

OK, I admit it, I'm not perfect. Heaven knows how the rumour started, but I'm not infallible. To prove it, the MIDI interface project had a mistake in the veroboard layout diagram. The wire connecting IC1 to R5 should go to pin 2, not as shown to pin 1. Apologies to all those who tried the project and experienced problems as a result – consider my wrist slapped (aooww. sniff ).

Other readers are having some trouble powering the various circuits we have built. There does seem to be some inconsistencies between different Amiga models as to the amount of power available from the parallel, serial and disk drive ports, so whenever possible please use an external PSU. A small 'battery eliminator'-style DC source will suffice, regulated if possible.

Here's a list of the values need to switch on the relays: !Wx – Relays turned ON

***0 None***
***1 Relay 1***
***2 Relay 2***
***3 Relay 1 and 2***
***4 Relay 3***
***5 Relay 1 and 3***
***6 Relay 2 and 3***
***7 Relay 1, 2 and 3***
***8 None***

For example, to switch on relays 1 and 3, enter:
!W5 (return)

## HOW IT WORKS

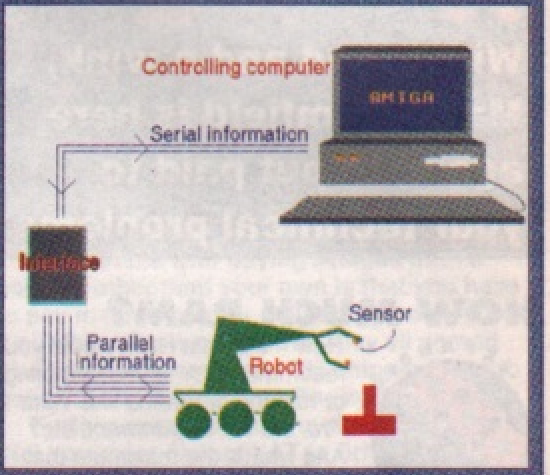
When the I/O port is told to send an ON signal, the transistor is switched on, allowing a current to flow through the relay's coil. This switches on the relay. When the I/O port goes low, the transistor switches off and the relay turns off too. The diode prevents any unwanted back voltage being produced when the replay coil turns off (the 'back EMF') thus preventing any damage to the transistor or I/O port.

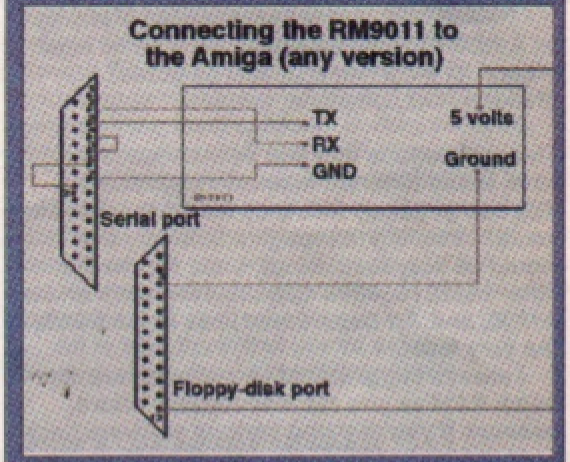
All the relays used are 'dual pole', which means they are really two switches in one, although the switching action is shared. That is, when one switch is turned on, the other is turned on too. Using the three switches to control two motors is an interesting little logic problem for you to think about.

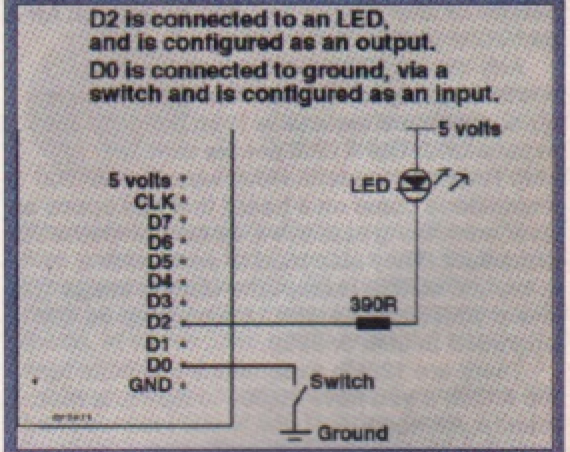
In fact, this is such a good teaser that I'll leave you with it until next month, when I'll give you my solution to this little gem of a brain puzzler. CU

## OOPS!

Don't you just hate it when you've laboured long and hard on a feature and then it all goes to waste because of some silly printing cock-up? That's exactly what happened last month in the first part of this feature. A couple of the diagrams were practically unreadable, as I'm sure you noticed. Kind hearted souls that we are, we're reprinting the diagrams below so that those of you who want to build your very own working version of Robbie the Robot can do exactly that. Are we good to you or what?!

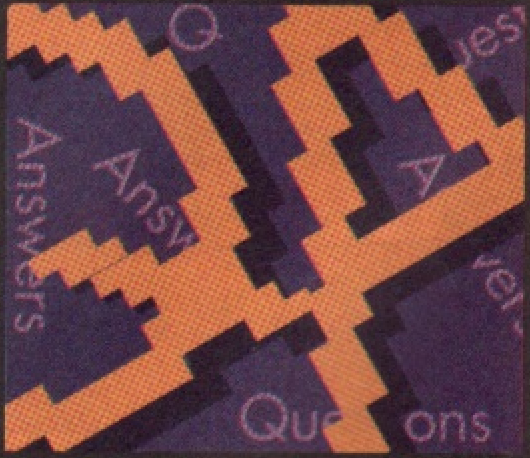



## NEXT MONTH

It's life Jim, but not as we know it! Look out for next month's exciting installment when our robot comes alive and takes its first tentative steps.




**With a nod and a wink, Mat Broomfield is here, again, to put paid to your technical problems.**

## HOW MUCH RAM?

How much fast RAM would you recommend for sound sampling or running programs like *Vista Pro*, the *Art Department*, etc? And what's the maximum that I can add to an A1200?

I am also thinking of buying an A1200HD. Would a 40Mb hard drive be large enough for most non-specialist purposes?
**Sheldon Pink, Clapham, London**

**The applications that you've mentioned all have vastly different memory requirements. You can get away with only a 512k machine for sound sampling (although admittedly that would be very restricting). *Vista Pro* on the other hand, requires 4Mbs to even work on an A1200, and *Art Department* likes to have 2Mb at the very least.**

**I always suggest that you should buy as much RAM as you can comfortably afford, because if you're using serious software packages, no matter how much RAM you have, sooner or later it's not going to be enough for a particular job!**

**Any internal RAM that you add to your A1200 is going to be 32-bit fast RAM. This is quite a bit more expensive than the old A500 expansions. The A1200 comes with 2Mb of chip RAM as standard. However, most A1200 expansions come on a board that has space on it for something else like a clock or a maths co-processor. They also tend to come with a minimum of 4Mb (except the Golden Image board which comes with 1Mb and can be upgraded to 5Mb or 9Mb).**

**There are 128Mb expansions available for the A1200 if you have £5,000 to spare. Is that enough for now!**

**In answer to your second question, it depends by what you mean by non-specialist purposes. Judging by the programs you've mentioned using, I would say that you're already using some highly specialist software. *Vista Pro* for example, can generate animations of 15Mbs, and that's not even using the A1200's AGA screen modes!**

**As I said, when answering your RAM query, I always recommend that people buy the largest drive that they can comfortably afford, but if you can only afford a 20 or 30Mb drive, wait till you can afford a bigger one.**

**Statistically, the commonest mistake that most businesses make when installing a new computer system is underestimating the size of the hard drive they need. They base their estimates upon their current needs without any consideration of the future. If I were forced to recommend a size for you (given the use that you plan to put your computer to) I would suggest an 80–120Mb unit. This will last you well into the future rather than simply satisfying your immediate needs.**

## A1200 PERIPHERALS

As more A1200 peripherals become available, do you think that their prices will drop much? Please can you tell me what peripherals, if any, can we expect to see in the near future? Would I be wise to wait a month or so before deciding to purchase any peripherals?
**Jim Edwards, Tredegar, Wales**

**Predictably, the price of just about everything in the computer market falls if you wait long enough. So, your choice is to either wait until the technology is no longer leading edge, but is cheap, or buy now at a premium price knowing that you have the best that money can possibly buy.**

**If you wait, you get to hear about any design flaws in a product, and you also see how well the product is supported by its manufacturer.**

**I usually wait a little while before buying my add-ons, although my GVP A530 Turbo drive was an exception that I haven't regretted for a single microsecond!**

**As for forthcoming peripherals, read the mag and you'll know. The news section is generally where you'll find any early product rumours or information.**

## BOOK RECOMMENDATION

What books would you recommend for the slightly more experienced user? I've had an A500 with *Kickstart 1.2* for six years, and I have recently bought a 1200.
**Clive Walker, Waterlooville**

**Both Abacus and Bruce Smith Books produce a complete range of Amiga titles ranging from general beginners titles to very detailed expert level programming guides. What exactly do you want to know?**

**If you want to learn more about Amiga-related issues, I would suggest that you might like to turn your attention to *ARexx*, which is a very handy language that can be used to increase the functionality of virtually all 'serious' programs.**

**If you feel that this might be a bit beyond you, why not try to improve your knowledge of *AmigaDOS*, the language which is used for loading programs and manipulating them.**

**Take a look at the following:**

***Mastering Amiga Workbench (BSB)***
***Mastering AmigaDOS Volume 1 (BSB)***
***Mastering Amiga ARexx (BSB)***
***Using ARexx on the Amiga (Abacus)***
***Amiga Intern (Abacus)***
***The Best Amiga Tricks and Tips (Abacus)***

**All the above books should be available from Computer Manuals, 50 James Road, Tyseley, Birmingham, B11 2BA. Tel: 021 706 6000.**

## WHICH IDE DRIVE?

I read your article about installing an IDE drive on the A1200 and noticed that you mentioned that IDE is the industry standard. Would this mean that it would be possible to connect any size IDE drive such as an externally mounted 3.5" drive?

Because I work with PCs constantly at work (ugh!), I discovered that the price of 3.5" drives is almost half that of the 2.5" ones which are recommended for use with the A1200. Would a 3.5" drive be a cheap alternative?
**John Kerisygn, Derby**

**To be honest, the whole area of IDE drives is something of a minefield and it is an area that I don't want to encourage our less experienced readers to venture into.**

**IDE is supposed to be a single standard which all compatible drives adhere to, but this is not the case, and as far as the Amiga is concerned you have to be very careful which drive you buy. After asking around, I've been told that all Western Digital drives are compatible, as well as most Seagate and Connor drives.**

**However, what complicates the situation is the fact that there is no guarantee of compatibility. The compatibility of the drive depends on the revision number of both the drive and the computer motherboard.**

**However, there are companies who can fit you a 3.5" drive internally, so it's theoretically possible for you to do the same.**

**Needless to say, CU AMIGA will definitely not be held responsible for any damage you may cause if you choose to try and install a 3.5" drive, internally or otherwise.**

## 32-BIT PCMCIA?

In your Muscle Up feature in the August issue you reviewed PCMCIA RAM cards for both the A600 and the A1200, but both cards appeared to be 16-bit. Is there a PCMCIA fast RAM card available with 32-bit RAM?
**Norman Shearer, Corby, Northants**

**As far as the Amiga is concerned, a 32-bit PCMCIA card will never be available. On both the A600 and the A1200 the actual interface that the card slots into only has a 16-bit data bus, so even if a 32-bit card existed, information could only be written to and read from it 16 bits at a time.**

## JUSTIFIED VIDEO

I've had my A500+ for two years now. At first, I just used it as a games machine, but now I find myself using it more and more for DTP, art and music.

I've already invested in a few little essentials such as a RAM upgrade, an extra disk drive and a colour printer.

I have a video camera and I was wondering if I could feed some video footage through the computer and then, say, freeze a frame of the kids and either print the frame as is, or send the picture to an art package to be coloured-in prior to printing.

If this is possible, how do I do it and what extras do I need so that I can get permission from the wife to spend more money? (I'm creeping round her at the moment for permission to buy an A1200!)
**D. L. Goddard, Pensarn, Wales**

Yes it is possible to do what you want but you'll need a piece of hardware called a digitiser. A digitiser will accept any video input ranging from a camera to a video recorder. Most worthwhile digitisers will allow you to capture an image in both monochrome (black and white) or full colour.

In monochrome you can usually capture the image in 'real time', that is to say that you don't have to provide a static image for the computer to work with; it can simply convert a live action signal into a frame or sequence of frames.

In colour, all of the cheaper digitisers require a perfect still frame to work from as it generally takes a second or more to convert an image into computer format. This means that if you're digitising from video tape you'll need a very good pause mode on your video player (digital pause is best).

When digitising a real world scene (such as your kids), the more colours you use, the more accurate the finished image will be. On a standard Amiga, this means that best results will be gained if you work in HAM mode.

However, you'll be pleased to learn that this means that you'll get a much better result if you digitise on an A1200 rather than an A500. The A1200's HAM mode offers a maximum of 256,000 colours compared to only 4096 on the A500!

Once an image has been digitised, it can be saved as a standard IFF screen which can be loaded into an art package and printed whenever you want.

## HOW TO EXPAND




If I add an MBX1200 and a hard drive to my A1200, can I fit a 68030 accelerator later on? I mean, will there be space for it inside the case and will it be compatible?
Ramor Dagge, Cuba

The hard drive makes no difference to the future expansion of your A1200 because it fits into a dedicated bay inside the machine. It is worth noting however, that if you fit a drive yourself, you invalidate your warranty. There- fore if the machine subsequently goes wrong you'll have to pay for the repairs yourself.

As for the MBX1200, it slots into the trapdoor expansion slot and only one peripheral can be fitted there at a time. If you plan to buy an accelerator later, you should not buy a plug in RAM board now.

## LIMITED MONITOR




How many restrictions would an 1084 monitor impose if I used it with an A1200? And can I still use all of the computer's screen modes.
Éimear Whitfield, Crouch End, London N8

As you're doubtless aware, whenever you select an interlaced screen mode, the screen appears to flicker or pulsate, especially near areas of high contrast.

The only solution to this is a piece of hardware called a flicker fixer, and unfortunately it isn't available for the A1200 yet (if it ever will be).

To answer your question, you can use the 1084 monitor in all of the A1200's screen modes except productivity mode. Productivity mode is a special mode which despite being in high resolution does not require a flicker fixer or de-interlacing hardware. This mode is only used by a limited amount of 'serious' programs such as DTP and word processing software.

Whilst it is useful, I get along without it just fine, and you probably will too.

The colours on the 1084 will not be as saturated (as strong) as a multi- or tri-sync monitor.

Also the dot pitch of the more expensive monitors range between .38 and .28mm while the 1084 has a dot pitch of .42mm.

This means that the picture of the more expensive monitors will be sharper and of better quality.

Having said all that, I've been using 1084s for years and I'm perfectly happy with them!

## CD ROM FOR A1200?




Will the A670 CD ROM fit into the A1200 considering the fact that it fits into the PCMCIA 'smart card' slot of the A600?

If not, will there be a CD ROM drive for the A1200?
Gonie Govenden, Kirby-In-Furness, Cumbria

The A670 will not fit on the A1200. The A670 will not even fit onto the A600 because so far as I know, it's been abandoned in favour of the CD32.

As you'll know, if you read last month's special feature, there is a CD32 CD ROM add-on planned for the A1200 and announcements about its specifications and price are expected by the time you read this.

## OCTAMED HELP




I have read several references to the effect that *OctaMED* doesn't support triplets or anything smaller than semiquavers. While this holds true when using the graphic notation editor (traditional bass and treble clef display) it *is* possible to represent any value or combination of values using the block editor. It's simply a matter of calculating the appropriate number of lines required in a bar or measure, and then the number of lines occupied by a note of a particular value.

For example, in 4:4 time, demisemiquavers (32nds) would require 32 lines per bar with each demisemiquaver occupying one line. A crotchet would then last for eight lines, dotted crotchets 12 lines, etc. It becomes more complicated when you have say demisemiquavers (needing 32 lines per bar) and semiquaver triplets (which require 24 lines per bar) in the same bar. You now have to find the lowest common multiple of 24 and 32, which as every schoolboy knows, is 96.

Hence, 96 lines per bar, each demisemiquaver needs 96/32=3 lines whilst each semiquaver triplet requires 96/24=4 lines.
Keith Smith, Cwmbran, Wales

Thanks for taking the trouble to send such detailed advice Keith, I'm sure that many of our readers will find it invaluable, especially as you've explained the concept so succinctly.

Don't forget folks, if you have a useful piece of advice that you can share with your fellow readers, don't be a scrooge and keep it to yourself, write in and let everybody know.

## SHOULD I UPGRADE?




I own a 1.3 Amiga 2000 and I am thinking of selling it and buying an A1200. Do you think that this would be a good idea? The only problem is, buying it from a dealer here in Kuwait will cost me KD 300 which is equal to about £650, and that's just for the basic version without a hard drive.

Are there any British companies who offer courier delivery to Kuwait at a reasonable price?
Hesham Wahby, Kuwait

I don't think that you should sell your A2000. Since the release of the AGA machines, the value of all non-AGA Amigas has taken a total hammering, so much so that it's no longer worth selling them to finance upgrades to more powerful machines. In any case, your A2000 is a good machine which is expandable and can be great as a second machine when you are performing jobs that tie the computer up for long periods.

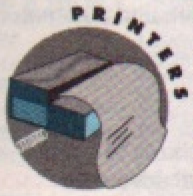
The trouble with buying Amigas from a country other than your own is that you have to pay insured courier delivery. I checked with a number of companies and they all agreed that you will have to pay £95 shipping fees to get a 7.5 kilo Amiga from England to Kuwait.

Further complicating the situation is the fact that you must deduct VAT (a British tax charged at 17.5%) from the advertised price but you should be prepared to pay additional import taxes when the machine arrives in Kuwait. This tax varies from country to country and from product to product and you'll need to contact your local customs or duty office to find out how much it will be in your case.

The final point to consider is what will happen if the machine goes wrong. Obviously you don't enjoy Commodore's on-site warranty over there, so you would have to pay the courier for a round trip (another £190) if a problem arises.

All in all, I think that you're safer buying goods from somewhere local!

## OKI MICROLINE




I am having difficulty in getting a printer driver, colour ribbon and a printer manual for an Oki Microline 294. Could you please tell where I can purchase one?
R.J.Smith, Weston Hill, Plymouth

Your printer supports Epson emulation, therefore you can use the EpsonQ driver on the Workbench extras disk. Of course, you may need to specify that you want Epson emulation mode, in which case you'll need the appropriate manual.

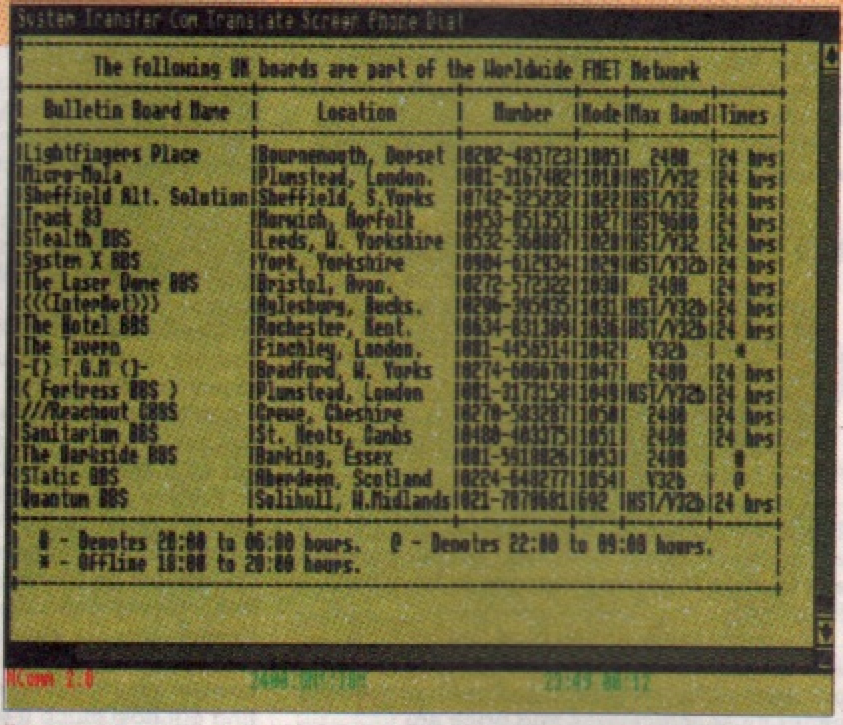
To get a new manual and find out about ribbons contact Oki at 550 Dundee Road, Slough Trading Estate, Slough, Berkshire, SL1 4LE. Tel: 0753 819819.

That's the end for another Q&A. Next month, John Kennedy, CU's resident ultra brain, will be joining me, so you can look forward to some really exciting new areas in next month's Q&A.

Write to us : Mat & John, Q&A, CU AMIGA, Priory Court, 30-32 Farringdon Lane, London, EC1R 3AU.

# BBS EXPLORED

**John Armitage leads the way deep into a typical Bulletin Board. Follow in his footsteps and discover the world of BBS.**



| The following UK boards are part of the Worldwide FNET Network | | | | | |
|---|---|---|---|---|---|
| Bulletin Board Name | Location | Number | Node | Max Baud | Times |
| Lightfingers Place | Bournemouth, Dorset | 0202-485723 | 1005 | 2400 | 24 hrs |
| Micro-Mola | Plumstead, London. | 081-3167402 | 1010 | HST/V32 | 24 hrs |
| Sheffield Alt. Solution | Sheffield, S.Yorks | 0742-325232 | 1022 | HST/V32 | 24 hrs |
| Track 83 | Norwich, Norfolk | 0953-651351 | 1027 | HST9600 | 24 hrs |
| STealth BBS | Leeds, W. Yorkshire | 0532-360087 | 1028 | HST/V32 | 24 hrs |
| System X BBS | York, Yorkshire | 0904-612934 | 1029 | HST/V32b | 24 hrs |
| The Laser Dome BBS | Bristol, Avon. | 0272-572322 | 1030 | 2400 | 24 hrs |
| <<<InterNet>>> | Aylesbury, Bucks. | 0296-395435 | 1031 | HST/V32b | 24 hrs |
| The Hotel BBS | Rochester, Kent. | 0634-831309 | 1036 | HST/V32b | 24 hrs |
| The Tavern | Finchley, London. | 081-4456514 | 1042 | V32b | * |
| -() T.G.M ()- | Bradford, W. Yorks | 0274-606670 | 1047 | 2400 | 24 hrs |
| ( Fortress BBS ) | Plumstead, London | 081-3173150 | 1049 | HST/V32b | 24 hrs |
| ///Reachout BBS | Crewe, Cheshire | 0270-583287 | 1050 | 2400 | 24 hrs |
| Sanitarium BBS | St. Neots, Cambs | 0480-403375 | 1051 | 2400 | 24 hrs |
| The Darkside BBS | Barking, Essex | 081-5918026 | 1053 | 2400 | # |
| STatic BBS | Aberdeen, Scotland | 0224-648277 | 1054 | V32b | @ |
| Quantum BBS | Solihull, W.Midlands | 021-7070601 | 692 | HST/V32b | 24 hrs |

# - Denotes 20:00 to 06:00 hours. @ - Denotes 22:00 to 09:00 hours.
* - Offline 18:00 to 20:00 hours.

If you want to get connected to a whole host and variety of different boards, try ringing some of these numbers.

Bulletin Boards are a tremendous source of information about games, hardware, software – heck – just about everything to do with computers and the rest of the universe. And most of them are absolutely free to use. There is no charge for 'connection time' or downloading; you only pay standard telephone fees. So, my advice is to use a local board and get all this information at a minimal cost. Want to find out more? Read on ...

To log onto a board all you have to do is to leave some personal details for the Systems Operator (SysOp) to validate you and hopefully within 24 hours you will have access to the board's main menu. (Well, that's how it worked for us courtesy of Lightfinger's Place, tel: 0202-485723.)

On the main menu there are loads of different options each leading to a variety of screens (or 'doors') which lead to the BBS's main features. The main menu can be displayed at any time by pressing '?'. When exploring, remember that '?' or 'HELP' will display your options, 'Q' will usually bring you back to the main menu and 'OFF' or 'QUIT' will take you out of the system and automatically disconnect your modem.

## FUN AND GAMES

In the gaming section, there are quizzes of various sorts, as well as the more traditional adventure-type games. There is an added bonus with the adventure games because most on-line games can be played by many different users, sometimes simultaneously. So, you can interact with characters, talk to them, steal their treasure and even fight them, and somewhere, someone will be sitting at a keyboard cursing your name and plotting their revenge.

Luckily, you can save your phone bill if you get too carried away because most boards impose a maximum on-line time.

## JARGON BUSTERS

- BBS: Bulletin Board System, the host computer to which you connect your computer via a modem.
- BAUD rate: a measure of the speed of a modem. 1,200 is the barest of minimums, 2,400 a bit slow and 9,600 is worth using.
- SysOp: systems operator – the mad fool who supplies (usually for free) the BBS for you to use. Be nice to this person.
- Download: copying a file from the host BBS system to your own computer.
- Upload: copy a file from your computer to the BBS system.
- Modem: the device which connects the serial port of your Amiga to the telephone network.
- Email: electronic mail.

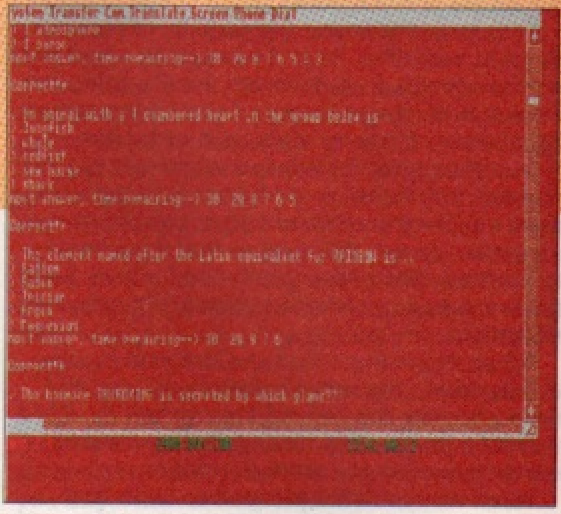
## EMAIL

Email, the electronic mail system, is perhaps the most useful section of the BBS. You can leave messages, queries, or opinions on any subject matter. The messages usually involve the swopping of hints, game cheats, technical information and classified ads for second-hand equipment and it is constantly updating. Also, if the BBS is part of the 'Fidonet' system (Lightfinger's Place is), your messages will be bounced all over the country.

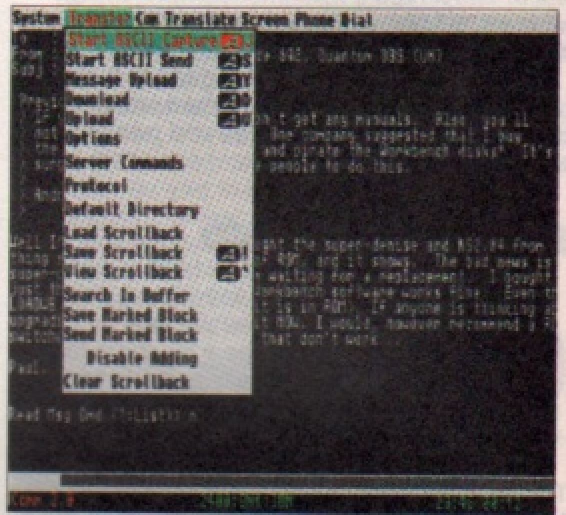
## PD SOFTWARE

Most boards keep vast stocks of PD software, all ready for downloading. Depending on the speed of your modem, downloading software in this way will only take a few seconds. The software transmitted will be archived to save both storage space and download time; so make sure you have a copy of a program such as unzip, unarc and lharc. Most boards carry uncompressed copies of these programs to get you started.

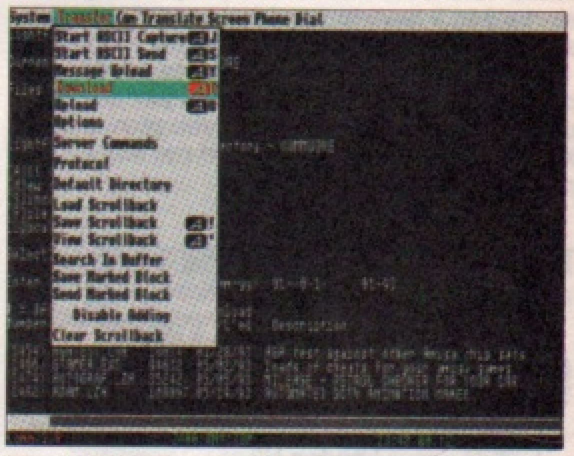
However, if you download programs, it is considered polite to upload something of your own. Some boards go so far as to impose a 'five down, one up' rule, which states that for every five files you download, you must upload one in return. Remember, before uploading, to check your files for viruses and archive them to save space.



Lightfinger's Board has a science quiz section and even keeps a high score table.



Electronic mail is cheaper than first class mail, and probably quicker. If you use your comms software's ASCII caption menu option, mail can be saved to disk and dumped to a printer at a later date.



You can get your own copy of these programs using the 'download' menu option. Use a ZModem if you can becuase it is probably the fastest.

## TIME TO GO

When you finally drag yourself away from the board, why not drop the SysOp a line about his board? SysOps love to hear comments, so tell them what you think.You'll also be given a list of other boards to try; so get going. After all, the night is young, and there are many other BBSs to use, and people to meet. Happy hacking!

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# SPREADSHEET HEAVEN




**Do you find that towards the end of each month, you are left with just five pence to feed and dress yourself with? Never mind because David Ward is here with the answer to all your financial worries – *Advantage*, the super spreadsheet package, which was given away free on one of last month's disks.**

Normally, when you think in terms of the professional spreadsheet package, you might imagine huge machines whirring away, flashing up huge complicated equations as it deals in billions of pounds in the company's day-to-day business. However, in reality, this is not the case. Addition, subtraction, multiplication, and division are the order of the day. Some of the built-in financial equations are applied occasionally, but on the whole spreadsheet packages are only used to total large columns of figures.

So, if you are a home user dealing in pounds and pence, rather than millions, you don't need to be Einstein to organise your finances. So, let's look at some examples of how to use *Advantage* to your er... excuse the pun... advantage.

## EXPENSIVE PASTIME

Periodically, the press publish figures for the running costs of family cars. These can be taken at face value, but wouldn't it be nice to work out the costs yourself? Well, now you can if you set up your spreadsheet in the following way. Firstly, we need a title. ' Car expenses' sounds nice and this is inserted into cell B2. To make it stand out I boldened it by selecting the cell and choosing 'Format/Style/Bold' from the menu bar.

Next, we need three columns headed ' Weekly', ' Monthly', and ' Yearly'. In column A, starting at cell A4, we need to enter labels for the individual costs.

The first label is for mileage. Since most cars are fitted with trip meters calibrated in miles it is a simple matter to record one week's motoring or you can get an annual mileage figure from two consecutive MOT certificates. The weekly mileage that is going to be entered in D4 is multiplied up by 52 for an annual figure. Therefore, the formula is D4*52 and the products of this formula are put in the cell F4. For the monthly value we calculate F4/12 and put this in cell E4.

Weekly outlay for petrol is next. Using a similar technique to that for the mileage values, we need to enter a label and costs. Again, monthly and yearly values are calculated from the weekly figure.

Continue entering new rows for each expense. Insurance, road tax, servicing, tyres, and so on. See *Figure 1*. Don't worry about pound signs just yet. By calling up the preferences requestor and using the menu item 'Options/Preferences', I have asked *Advantage* to display only the formulae entered into the various cells. This is shown in *Figure 2*.

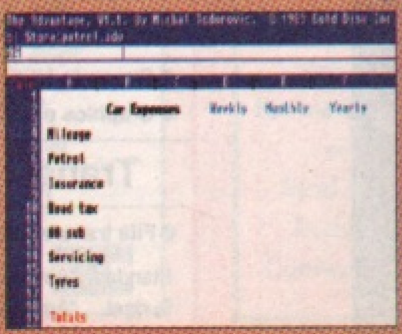



Figure 1: Our 'Car Expenses' spreadsheet with the labels we are going to use.

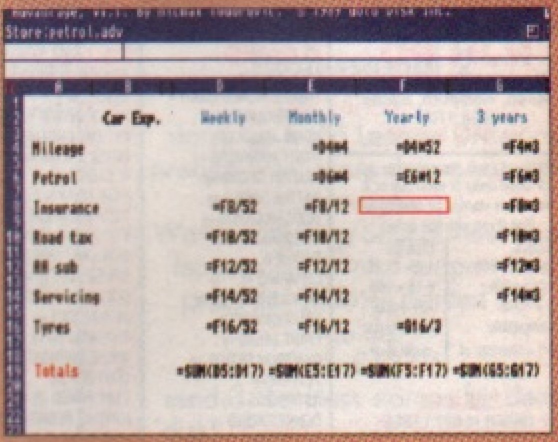



*Figure 2:* Once all formulae are inserted, you can check them if 'Show formulas' has been selected in the preferences requestor.

Blank cells are where our known values are going to be placed. In the weekly column there are places for mileage and petrol costs, while the column headed ' Yearly' has gaps for insurance, the AA subscription, servicing, and road tax.

You will notice that I have put an extra column labelled ' 3 years'. This is for those items that are replaced at longer intervals, namely tyres.

The final row ' Totals' has the formulae =SUM( ) entered at the bottom of each column. Click on the first cell that contains a monetary figure and drag the red box down to the cell just above total and *Advantage* automatically enters the range of that column into the formula box.

For instance, if we started with E4 and dragged down to E17, then E4:E17 would appear after =SUM( like this: =SUM(E4:E17. It is then just a matter of closing the bracket and pressing Return and the formula is entered.

Now we can enter the figures. As each number is put into its relevant cell the spreadsheet automatically updates the other cells linked to it via the formulae. When we have finished we should have a spreadsheet that looks like *Figure 3*. The labels have been changed using the 'Format/Pen Color'

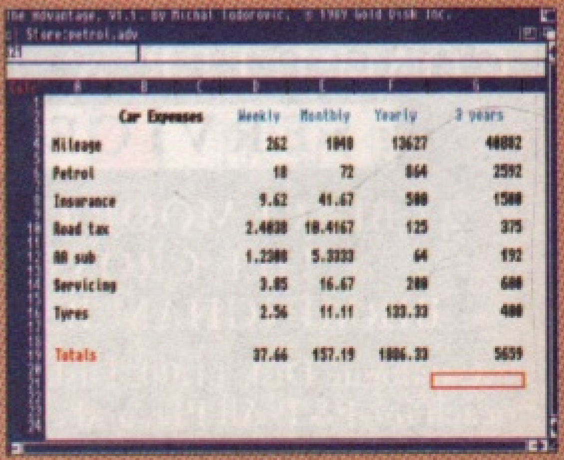
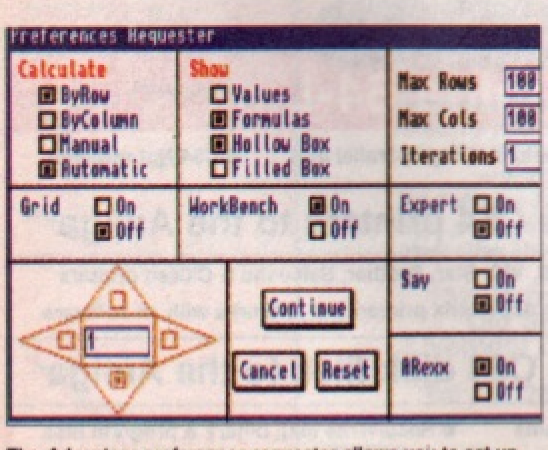



*Figure 3:* Values can now be entered in general format.




The *Advantage* preferences requestor allows you to set up the number of rows and columns, the direction the cell indicator moves after pressing Return, and to turn off fail-safe requestors in expert mode.

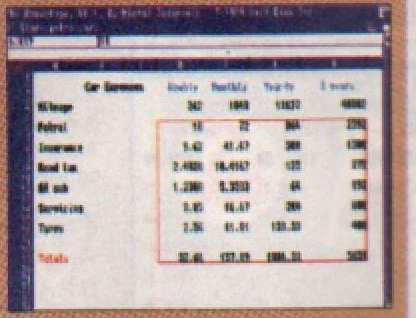


Figure 4: By selecting the top left hand cell, and dragging with the left mouse button held down, it is possible to select a range.

by dragging out the current cell's red box to enclose those to be altered.

Now, if the currency symbol has been set in the tooltypes list of the *Advantage* icon, then we can change all the money values on the spreadsheet from general to currency format. Click on D6 and with the left mouse button held down, drag out the red box to encompass all monetary values – as in *Figure 4*. By selecting 'Options/ Currency' *(Figure 5)* all these values will be converted into pounds and pence *(Figure 6)*. If you want an idea of the cost in terms of pence per mile, then it is a simple matter to enter a formula that will divide the total of one column by the mileage in that column, like '=D19/D4' in cell D21.

Unfortunately, all these results are approximations. Our weekly mileage varies. Petrol prices change monthly it seems and who knows what inflation and the government will do to our long-term figures.

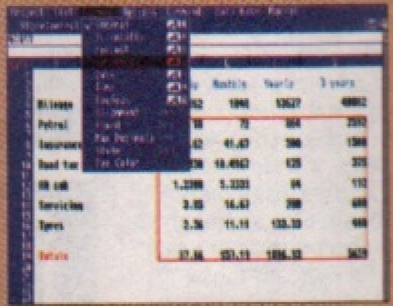


Figure 5: This time the 'Format/Currency' function of the menu bar is used to convert the selected range into pounds and pence.

Plus the fact that depreciation hasn't been taken into account as a running cost, which it is. No formula can ever work out depreciation on a car, no matter what some clever accountants might say. One make and model's value will plummet like a stone compared to a similar car from another manufacturer. New cars drop in value faster than those nearing the end of their lives, so we can deduce from this that depreciation operates logarithmically.

The method I would most likely use to approach this problem is; to work out how much money has to be put aside each week to replace the vehicle after three years. Let's assume that our brand new £10,000 car will depreciate by £1,500 in the first year, £1,000 in the second and £750 in the third. So, in year three it is worth £6,750. We have to assume that car prices are going to rise by 5% per year. Our £10, 000 car will then cost £11,500 in three years time. Thus the amount of money we put aside is 11,500-6,750=4,750, or roughly £30 per week. I am sure it's cheaper to use the bus!

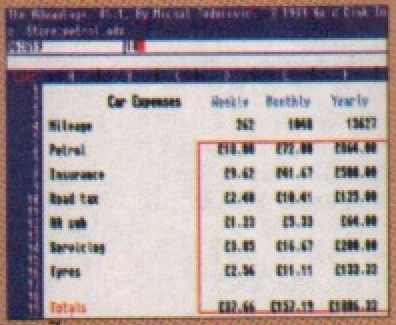


Figure 6: The finished spreadsheet for 'Car Expenses'.

## A PENNY SAVED IS A PENNY EARNED

Using a similar method to the one above we can create a spreadsheet for the household budget. This is set out as in *Figure 7*, with the preferences set to show only the formulae for your information.

Column A has been set to a width of eight. It holds the labels for income and expenditure. The other columns have been set to a width of 15, mainly to show the full formulae that are entered into the cells.

Income is the amount of take-home pay per month. In this case, the employer pays a regular sum every four weeks which means that there are actually thirteen pay periods per year. This is represented by the formula '=C6*13' in the ' Yearly' column.

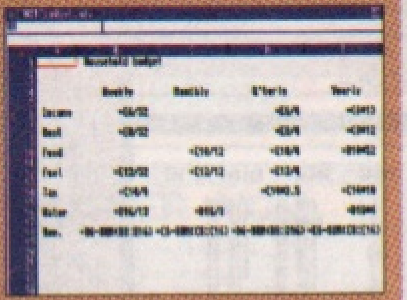


Figure 7: A spreadsheet prepared for home budgeting with all the formulae inserted.

Rent, or it could be mortgage, is paid monthly, but this time in regular months, twelve times per year, unlike the Council Tax which is only paid ten times a year so there are periods when no payments are made. However, for our budgetary requirements we need to take into consideration all outgoings so, items like the Council Tax are calculated from the fixed monthly payment.

The grocery bill is the only item worked out from a weekly basis, while water rates are calculated from the quarterly charge. You may have different outgoings and maybe even extra income therefore the spreadsheet would have to be adjusted for your own personal circumstances.

»

»

The fuel bill is the total amount usually spent in a year on gas and electricity. It cannot be worked out from a quarterly charge as this varies with the time of year it occurs in. Winter bills are always higher than summer ones, so the four quarterly bills are totalled for each utility and the sum is placed in E12.

The last row, titled ' Rem.' is what is left over. It is the sum of the expenses subtracted from the income. Enter the amounts and watch *Advantage* calculate the answers (*Figure 8*). Select all the values and convert them to currency format like we did for the car expenses.

Now to make the outgoings stand out, select them and choose 'Format/Pen Color'. Up pops a palette requestor (*Figure 9*) and by picking red we can alter the colour of the expenses (*Figure 10*). I hope you did not get any negative values in your remainder (' Rem') row, as this is the money left over for clothes, holidays, and entertainment.

In my example, I left out the car expenses figures we obtained earlier. If they were included then the remainder figure per week would drop to £33. And if the amount of money needed to be put aside to replace the car after three years was added, then I would only have £3 left for luxuries.

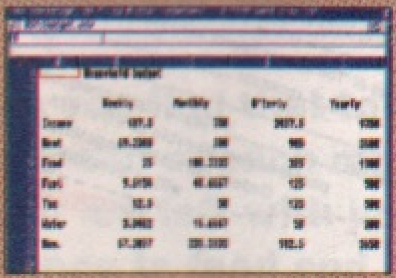


*Figure 8:* With the values entered into the blank spaces *Advantage* automatically calculates the results for each formula.

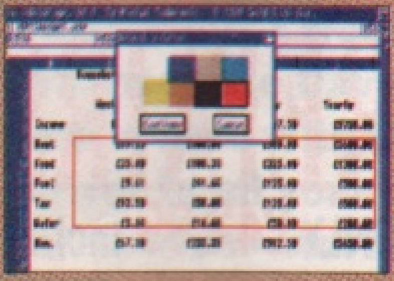


*Figure 9:* Outgoings are best seen as red numbers, so using the 'Options/Pen Colour' menu item to call up a palette of ink colours, a selected range can be changed very easily.

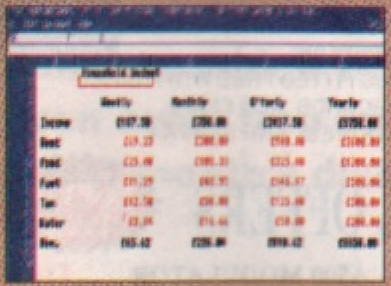


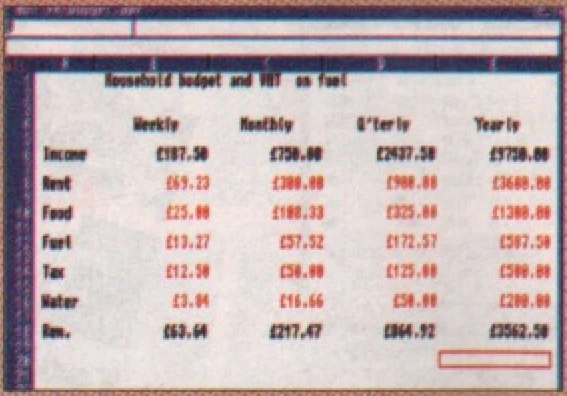
*Figure 10:* Voila, here we have red numbers.

This indicates that I should think about buying and running a cheaper car. One that is more in line with my current salary. Oh, by the way, these figures bare no relation to my true income and expenditure. I earn a whole lot more. (I wish).

## VAT AND ALL THAT

With Government considering the imposition of VAT on domestic fuel bills, I think we ought to see the effect it has on our household budget. By simply altering the contents of E12 from '500' to '=500*1.175' we get the fuel bill plus VAT, and budget amounts altered accordingly. What we have done is to change the value into a formula by placing an equals sign in front. Now we can multiply this by the percentage increase caused by the current rate of VAT at 17.5%. 1.175 is reached by adding 100, to get 117.5, and then dividing by 100. Multiply this by the amount that is to have VAT added to it and bob's your uncle.

*Figure 11* shows the amended spreadsheet.



Household budget and VAT on fuel

| | Weekly | Monthly | Q'terly | Yearly |
|---|---|---|---|---|
| Income | £187.50 | £750.00 | £2437.50 | £9750.00 |
| Rent | £69.23 | £300.00 | £900.00 | £3600.00 |
| Food | £25.00 | £108.33 | £325.00 | £1300.00 |
| Fuel | £13.27 | £57.52 | £172.57 | £587.50 |
| Tax | £12.50 | £50.00 | £125.00 | £500.00 |
| Water | £3.84 | £16.66 | £50.00 | £200.00 |
| Rem. | £63.64 | £217.47 | £864.92 | £3562.50 |

*Figure 11:* Add VAT to our fuel bill and see the difference.

The fuel bill increases by £87.50 per year. Not a pretty sight for those who will not see an increase in their yearly income.

## STOCK CONTROL

Another area where VAT could apply is the small businessman's stock. *Figure 12* shows such a spreadsheet. It is a portion of a much larger stock list. Here we have stock numbers for each item, a limited description, a VAT rating, wholesale cost, quantity in stock and the retail price including VAT.

At the bottom of the spreadsheet is a total for the number of items in stock and the stock's value. The built-in formula '=SUM()' is used for these columns. The retail price column has a more complicated formula as it is dependent on the VAT rating in column C.

Books are currently zero rated, while everything else in this list has 17.5% added to it. What we need is a formula that can tell whether something is zero rated or not. This is where the logic (Boolean) functions come into play. *Advantage* has 'IF(TRUE/FALSE,TRUE EXP.,FALSE EXP.)' as one of its logic functions. In simple terms this means that if something works out as true then use the true expression. If false use the other one. Our formula is 'IF(C5=1, D5*1. 3*1.175,D5*1.3)'. So if C5 contains a 1 then take the cost of the item and multiply by 1.3, our 30% profit margin, and again by 1.175, the VAT rate. If C5 does not contain 1 then just multiply the wholesale price by 1.3. Either result is placed in G5.

Such a long formula would be tiresome to enter by hand all down the column. So, after the first time it is entered, reselect it, and choose 'Edit/Copy'. Now drag the red box down to the bottom of the column, not down to the totals row, and choose 'Edit/Fill/Down'.

*Advantage* automatically fills the rest of the column with the formula adjusted for its new position. If you try to set up a spreadsheet similar to *Figure 12* you may find that none of the columns line up as neatly as in the example. The trick is to make use of the menu bar's 'Options/Column Width' and 'Format/Alignment' features.

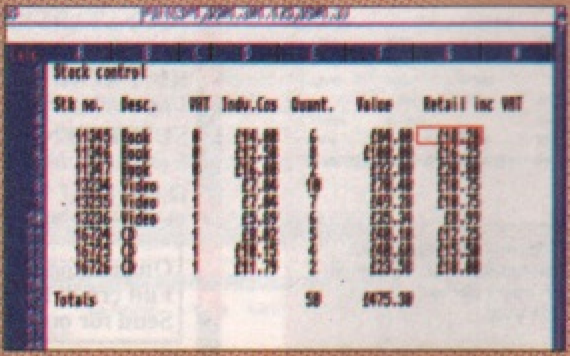


*Figure 12:* Sales and deliveries can be entered for up-to-date information on the value and quantities of stock held.

Cash values need to be right justified, which they are when currency format is chosen, but the VAT rate code, label text, and quantities should really be centre justified for tidiness.

When all is done you can print out the result. Some users swear by their spreadsheet program for printing rows and columns of figures for inclusion in reports, as they find the output easier to put together than with a word processor.

## IN THE BLACK

Finally home accounts, that old favourite. This requires four columns: a description of the transaction, credit, debit, and balance (*see Figure 13*). Using this layout we can keep a track of where money comes from and goes to. There is only one formula used. It appears in the balance column cells, and is complex yet simple.

Here we want to show any negative balance in an outstanding manner. To do this we need to use a logic formula that includes colour information for the spreadsheet. Its form is '=F5+D6-E6 +(0*COLOR (F5+D6-E6>=0,6,7))', and it appears in cell F6. F5 holds our previous balance. Column D holds the credits, while column E is for debits.

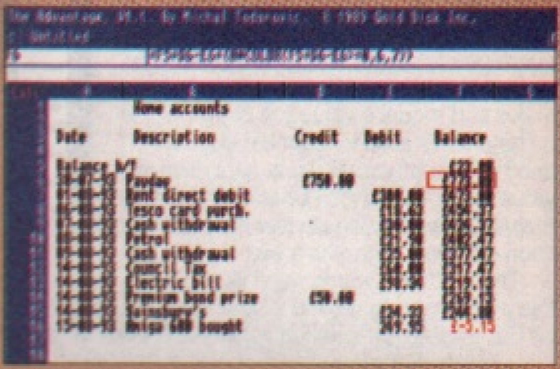


*Figure 13:* The bank balance-style spreadsheet tells when that last minute purchase pushes you into the red.

The formula takes the value in the cell above it in column F, adds a credit or subtracts a debit, and then uses the same formula again within the brackets to find out whether the final result is either positive or negative.

The function COLOR (expression,color1,color2) works on a true/false principle. In our case if the value worked out by the formula is greater than zero, color1 is used as the pen colour for that cell. If less than zero, color2 is used.

Black ink is represented by a 6, and red by a 7 in this set-up. If you change the palette these colours will vary. Since the Color ID returned is a number it must be multiplied by zero so that it does not have an effect on the calculated result.

Unlike our previous spreadsheets where we knew how many rows were required, our home accounts could have numerous entries. It is not a good idea to use 'Fill/Down' to copy the formula down the page. We would end up with an unsightly column of extraneous figures.

The best thing to do is select the last used cell in F and choose 'Edit/Copy'. Then move the red box down to the next empty cell in F and use 'Edit/Paste/Relative'. This will insert a suitably modified formula into the cell. Continue doing this each time a new row is used.

Finally a tip: as we are only using a few columns, it might be an idea to set the row and column gadgets in preferences to give a thin long spreadsheet, say 200x10 rather than the default 100x100. This helps memory conservation. CU

## DON'T FORGET

Some people may have experienced problems using last issue's Advantage giveaway. All text for spreadsheet labels should have a space preceeding the cell name. The leading space is important as it is Advantage's way of distinguishing a label from a formula (which starts with an equals sign) or a number.

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# BACKCHAT

**Decked out in his favourite straight jacket and with his eyes pinned back by masking tape, John Mather settles down for another relaxing session of letter answering. He loves this job, he really does...**

## WHAT'S A COMPUTER?

Since finding myself dumped on the compost heap at the incredibly young age of 60, and with no chance of ever regaining legitimate employment, I scanned the scene for something to do, not too strenuous or taxing, but something just to while away the next twenty years or so before being measured for the obligatory wooden overcoat.

Having heard the word 'computer' mentioned several times during my forays into the plush surroundings of the Job Centre, but not knowing what this thing was, I made my way to the nearest hi-tech shop and met a very knowledgeable young sprog who, if not a computer whizzkid, was only half a byte away from it. In answer to my numbskull questions, it soon became clear to me that this young mouse had the mental capacity of a 32-bit RAM chip, running at 40MHz, and that I should need to keep my feeble wits about me if I was not to walk home having bought the NASA launch pad.

Although I could not be described as brain dead (except when the pubs close on a Saturday night), I do sometimes feel that a 68EC030 Accelerator implanted somewhere in that region might improve things a bit.

However, he (the shop sprog) quickly weighed up my financial straits and flogged me an Amiga 500 package with *WP Kindwords 2, DB Superbase, DTP PageSetter 1.2* and *Deluxe Paint 2* all on *Workbench 1.3*.

With great enthusiasm he pointed out its awesome potential and upgrading possibilities, a fact to which I can personally testify having upped everything: three disk drives, extra $^1/_2$Mb of memory with clock, up to 3Mb of Simms and an A500-HD+ GVP 49Mb Impact Series II hard disk.

Having splashed out the hard cash, I then set about mastering its belligerent software and it became a battle between its floppies and the hardening of my arteries. I think I'm winning. However, I do need advice from someone at the top and wondered if you could oblige.

1. I want to put 500 B&W and colour photos of railway material on computer using a scanner, and be able to add text from my word processor and database to the pictures. Is this possible?

2. Would it be best to install an A500 Microbotics VXL-30 accelerator, or exchange my A500-HD+ for a new GVP A530 Turbo? Or do something else?

3. If I upgraded (again) to a 32-bit machine, would it be compatible to my present much-used word processing and database programs?

Finally, can I remind you of my age, just to indicate that I'm reluctant to go in for a second mortgage to pay for all of this? (Although I would be prepared to sacrifice a few hangovers if absolutely essential).

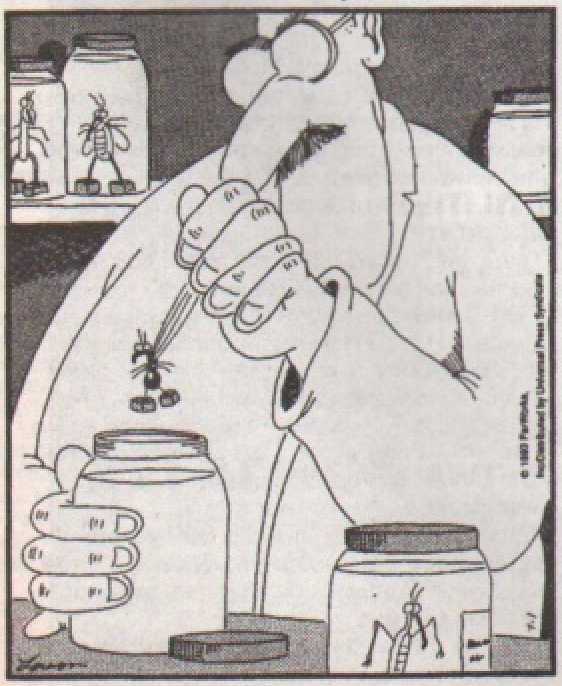
***Jack Hayward, Swindon, Wilts.***

**1. Sure it's possible. You'll need a hand scanner to convert the photos. You can buy a good one from Golden Image (Tel no:081 365 1102) for under £100. You'll also need a DTP or page publishing program to incorporate the text and graphics. My personal favourites are *Professional Page, Wordworth 2* and *Final Copy 2*.**

**2. The A530 Turbo is the creme de la creme, but as you already own a hard drive it makes sense for you to buy a VXL-30 unless, of course, money is no object!**

**3. Chances are most of your 'serious' software will still be compatible with a 32-bit machine. Some of your games may not all be as reliable, though.**

**THE FAR SIDE** By GARY LARSON



Scenes from the entomology underworld

## TESTING TIMES

As an A4000 owner I was shocked to discover that MicroProse's latest flight sims, *B-17 Flying Fortress* and *Gunship 2000*, simply refuse to work on my machine.

In search for some explanation I called their helpline and discovered that they are not able to test their games on the A4000 simply because they don't have one at the office. Is this something one should expect from a so-called quality software house?

Fortunately, all is not lost. I am sure most of us already know that Digital Image Design (DID) will release an A1200/A4000 specific version of *Inferno* and Digital Integration(DI) assured me that their very soon-to-be-released *Tornado* will be compatible with all Amiga models, including the A4000.

Yes indeed, they do have one at the office! Even better, there will be an AGA-version a short time after the general Amiga release and there could even be a possibility to upgrade.

Well, it seems DI and DID actually show commitment! I also have a question for you. If MicroProse manages to get its act together is there, considering the time it took to port Gunship 2000 over from the PC, a possibility of seeing an Amiga version of *Falcon 3* before the end of the century?

***Camermans Filip, Belgium.***

**Actually I can sympathise with MicroProse on this one. Here at CU AMIGA we're lucky if we even get to see an A500 with our budgeting problems. You think this magazine is all done on those newfangled DTP things with computers and all that? Hah! I'm typing this on an old steam-driven typewriter while the page is being laid out by people with cutting knives and sticky tape!**

**And no, somehow I don't think we're going to see *Falcon 3* in the near future. American software is being transferred to Amigas with rapidly decreasing frequency these days. Besides, we're getting Tornado. A good British plane, with British values, (cue Land Of Hope And Glory, patriotic flag-waving etc.).**

**THE FAR SIDE** By GARY LARSON




## THE TURNIP PATCH

I have just spent four hours playing *Graham Taylor's Soccer Challenge* and I haven't even been promoted to Division 2. I thought it would take three seasons to be promoted. I spent the first season improving defence, buying four new quality players. Everything was going well until half way through the season when my team started leaking goals. By the end of the season we had let in a

staggering 96. Not surprisingly, I was sacked.

It's not that I'm no good at soccer management games. I'm good at *Premier Manager*. I've got £20m and won the league for the past six seasons. Please could you contact Krisalis for me and ask them what the hell they think they are doing. I have written to them but they have not responded. Please print this letter or I will do something drastic, like blow up Krisalis's headquarters.

***Dean Phillips, Newton, Porthcawl.***

**I don't know what you're complaining about. We all know Graham Taylor doesn't know anything about football and deserves the sack, so I don't think you could wish for a more realistic soccer sim. Without realising it, you've completed the game. And remember, playing with explosives isn't clever kids!**

## PURE GUESSWORK

I recently fed all the available data concerning Dan Slingsby's age into my A4000, running a very sophisticated, home-made maths processing program. I took the resulting figure to my Equational Archiving Data Encrypter and entered the combined total (in binary) into the logic circuits of a custom-built Theoretical Analyser and set it on compute mode.

The process took a total of four hours, thirty-three minutes and forty-five seconds and I can now reveal the exact figure (to the nearest second) of Mr. Slingsby's age. Here goes. It's... Yellow?!? ...oh Bum.

***Kevin Naylim, Southport, Lancs.***

**Oh well, what a damn shame after all your hard work and effort. It just goes to show that even high-technology can't be trusted. But you were close, very close though. Although, Dan's probably more than likely in the Aquamarine age group.**

## PAT ON THE BACK

You don't normally print letters of praise, but I think that this particular company really deserves a pat on the back.

I recently wrote to three companies with the aim of obtaining some information, guidance and additional fonts for my copy of *Pagestream*.

Two days later, I received a large, well presented, and very informative information pack from EM Computer Graphics.

Several days later an information pack arrived from one of the other companies. That was two weeks ago, and so far I have not heard from the third company, who I have to say, must be very interested in selling their products!

So, I now had two different info packs. The second company's pack detailed the fonts they had available, as it should, and came with a letter from the proprietor which was a nice touch, even though it was most probably a standard letter sent to every customer.

One thing that did catch my eye was that one page listed a substantial number of fonts that had been removed from their collection due to copyright reasons. I guess this meant that the company had not done their homework and had been illegally distributing commercial fonts. I wasn't at all impressed with this and decided to place my order with EMC.

Guided by EMC's info pack, I decided on what I wanted and phoned EMC with my order. I found that the person, Errol, who answered the phone to be extremely knowledgeable. He answered my numerous questions concerning fonts and their installation without hesitation, which proved to me that he knew what he was talking about. As a result, I placed my order for two of the EMC type 1 volumes of fonts. I was totally gobsmacked when my disks arrived the very next day. I had actually been prepared to wait several days, as I normally do when I place orders for PD software. I ripped open the package and again was impressed because instead of the normal blue disks, I was presented with 10 black ones, which even had the EMC logo printed on the shutters.

Even the labels were properly printed and not run of the mill dot matrix printed labels that I'm used to receiving. It was a nice professional touch I thought!

To cut a long story short, I found the EMC disks were well laid out and the information and installation instructions were very clear and written with the beginner rather than the professional user in mind. I have since placed several more orders with EMC and consistently found their service, support and products to be of the same high standard. I'd certainly recommend them to other CU AMIGA readers, so I hope you'll give them a mention.

***Bill Bakayi, Catford, London.***

**Thanks for letting us know about the good service offered by EMC. Have any other readers any dealer recommendations that they'd like to make?**

# LETTER OF THE MONTH

## CONSOLE CRAZY

Being a complete Amigaphile, I rushed out to buy the latest issue of any magazine that had details of the new Amiga CD console. The only one on the shelf was CU AMIGA, strangely appropriate as I have been a reader since 1984. And there within those glorious pages contained all the details concerning the Commodore Amiga CD32.

Dan Slingsby's editorial, which opened with the phrase 'Sega and Nintendo are history' was almost as naively optimistic as Commodore themselves. I couldn't help feeling when I read your article that Commodore will be pushing this machine as a games console. Certainly it comes close to the accepted definition for the term games console - no keyboard, fiddly little joypad and so on - but how can the Big C possibly hope to take on the giants like Nintendo and Sega and win, just on the premise of having a machine with a better spec?

And most certainly, the Amiga CD32 does have a better spec than the other consoles currently widely available, within the price range, and the inclusion of a facility for FMV is very exciting. It is essentially an A1200 with a CD drive, but shoved into a rather primitive-looking black box. However, this 'look' might detract from its success. Despite the old adage 'Don't judge a book by its cover', people see the machine first, be it in a shop window or wherever, and if it looks like a pile of CR*P then I'm not sure about how many people would bother to investigate further.

Ultimately, it's the machine that counts, but with the kind of market that Commodore is trying to address, looks are all important. Why else did Nintendo release the UK version of the SNES in a curvy casing rather than the rugged 'purple breeze block' look of the US version?

After all the recent shake-ups and write-downs at Commodore, they surely don't have the marketing 'oomph' required to push this product enough. Sure, it's been hyped and all the magazines seem to be pretty excited about it, but in order for new games console to compete, it needs to have a huge advertising campaign. This is possibly even more important than the software that's available at launch. Take, for example, the Sega Mega CD. Where was the software? Nowhere to be seen. But the adverts? You couldn't miss them. As a result, all 70,000 that were initially shipped into the country sold out like very hot cakes indeed.

I feel that because of this, the only way the CD32 will truly succeed is in the Amiga's established market. Until an add-on CD drive is available for the A1200 and A4000, I find it hard to believe that this machine will make serious inroads into Sega's or Nintendo's market. I, for one, as a recently upgraded A1200 owner, will not be investing in CD technology until an add-on drive becomes available. Unfortunately, Commodore's record in this department is poor. How long did it take them to release the A570 drive for the A500 after the much-delayed release of the CDTV? Almost a year.

Again, I can't help but feel that Commodore's promise of an add-on before Christmas is, if not dishonest, extremely optimistic. If this trend is repeated, and the machine does not sell on its own merits, as I find likely, then by the time Commodore get around to releasing a CD32 kit for the A1200, won't all the software houses have given up?

I am ready to be proved wrong. There is nobody who would rather see the new machine succeed than me (well, maybe Commodore too), because CD software could be the saviour of the Amiga as the last barrier to piracy. Those software companies who have stuck with the Amiga so far are eager to get into the CD market for this reason, but I have to site the case of the A1200 in terms of software support. I bought my machine only a couple of weeks after its release, when even the AGA version of *Zool* was apparently unavailable, and software is still, after several months, not particularly forthcoming despite reported huge sales of the computer itself. In order for the CD32 to succeed, Commodore must ensure that new and innovative product is developed, and if this involves investment in new projects with third-party manufacturers, so be it. After all, David Pleasance has promised in your very pages that 'it will not fail'.

Let's hope, for the sake of the Amiga, that it doesn't.

***Daniel Spreadbury, Bournemouth.***

**It's certainly make or break time for Commodore. After our initial excitement over the machine, our enthusiasm has waned somewhat because there are few games anywhere near completion and the truly mind-blowing stuff won't appear until well into next year.**

**'We also have our doubts about how the machine will be marketed; this is an area in which Commodore have never been particularly strong. You only have to think back to those awful boy-at-computer-playing-games ads last Christmas to see what I mean. They looked incredibly tame when compared to the Nintendo and Sega ads, and made everyone who uses an Amiga look like extremely sad anorak cases.**

**Still, with a strong north easterly wind behind them, Commodore must have a more than evens chance of making a success of the CD32 console.**

**Watch out for a new CD column starting shortly in these very pages...**

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# TYRANNOSAURUS AREXX



**If the Amiga is to be saved from the same fate as the dinosaurs, more effort must be put into *ARexx* compatibility, argues Jason Holborn.**

Much has been said about the merits of *ARexx*; the inter-process communications language now bundled free of charge with all Amigas since the A500 Plus. Phrases such as 'utterly amazing', 'state-of-the-art' and 'the best thing since sliced bread' have been banded about concerning this communications package with little concern for the welfare of the innocent. Such claims certainly aren't unfounded; any techie will tell you that *ARexx* is one of the most powerful aspects of the Amiga's operating system. But how many people actually use it?

Don't get me wrong, I'm not putting *ARexx* down one bit. Far from it. *ARexx* does live up to the hype, but I still can't stop thinking that perhaps all this power is going to waste. With a little more effort from Commodore, third party developers and perhaps even journalists, *ARexx* could prove to be the key to the Amiga's success in a number of markets including multimedia, a market that Commodore still hasn't managed to crack, and perhaps even the Amiga's own long term survival.



CU AMIGA's missing link, Jason Holborn, argues the case for Arexx compatibility.

Ok, so products such as *Scala Multimedia* have achieved a certain amount of success (rumour has it that even IBM have bought several *Scala* setups), but the Amiga is still seen as nothing more than a games machine in the eyes of corporate buyers.

*ARexx* could change all this if Commodore were to encourage both users and third-party developers to make greater use of *ARexx*. One of the biggest problems is the lack of *ARexx* support amongst developers.

Ok, so many software products feature *ARexx* 'ports', but even these tend to be mainly of American origin. So, why aren't UK developers making their wares *ARexx* compatible? Some argue that their products don't suit *ARexx* compatibility, but I have yet to find a single *ARexx*-compatible product that hasn't been significantly enhanced with *ARexx* compatibility.

## HARD FACTS

One of the most worrying aspects of this equation is the lack of *ARexx* support amongst hardware developers who (although they don't seem to realise) have the most to gain from *ARexx* compatibility. By making a hardware product *ARexx* compatible, that product could theoretically be driven by any package that sports an *ARexx* port. At the moment, it's left to the developers of individual software programs to write the necessary drivers to allow their software product to control a piece of hardware, but it shouldn't be this way.

Take a CD-ROM drive, for example. If the developers of that drive were to write an *ARexx*-compatible device driver that featured a set of commands giving control over the drive, any authoring or desktop video program could access it without special drivers needing to be written.

As far as I know, only a single hardware developer has seen the light. GVP, always a company at the forefront of development, have released two hardware products boasting *ARexx* compatibility; *G-Lock genlock* and *DSS 8+* sound sampler.

More hardware developers need to follow GVP's lead. In particular, Commodore should set an example by making their new A1200 CD-ROM drive (when it arrives) *ARexx* compatible. It can certainly be done, the PD program *JukeBox* (on Fish disk 819) allows A500 owners to play CD sound tracks from the Workbench on machines equipped with an A570 CD-ROM drive. With FMV (Full Motion Video) technology for the Amiga waiting in the wings, *ARexx* compatibility on CD-ROM drives will become even more important.

Another problem lies with *ARexx* itself. It really does need to be made a bit friendlier by bringing it up from the Shell so that it runs under Workbench. Although many techies swear by the current system, *ARexx* shouldn't be restricted only to those that understand the Shell. Many users complained when Commodore ceased shipping machines with AmigaBASIC, so Commodore could answer both criticisms by bundling some form of Intuition-based *ARexx* program editor that allows you to not only edit *ARexx* scripts, but also execute them too without having to drop back to the Shell.

Commodore also needs to increase the profile of *ARexx* by including the *ARexx* manual with all machines (yes, even the A600!). At the moment, the only users that even know that *ARexx* exists are those who buy A4000s!

## WIDE EYED

If developers were to open their eyes to the possibilities of *ARexx* then perhaps we'll start to see a greater acceptance of the Amiga as a professional machine. Let's face it, even if the Amiga still doesn't manage to penetrate the markets that have eluded it for so long, at least the rest of us would have products that offer a considerably higher level of compatibility.

The IFF file format revolutionised Amiga file compatibility and ARexx could do exactly the same thing for hardware. So come on all you developers, think *ARexx*! CU

# THE EYES HAVE IT!

## THE CRITICS HAVE CAST THEIR VOTE - FLASHBACK IS THE WINNER

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